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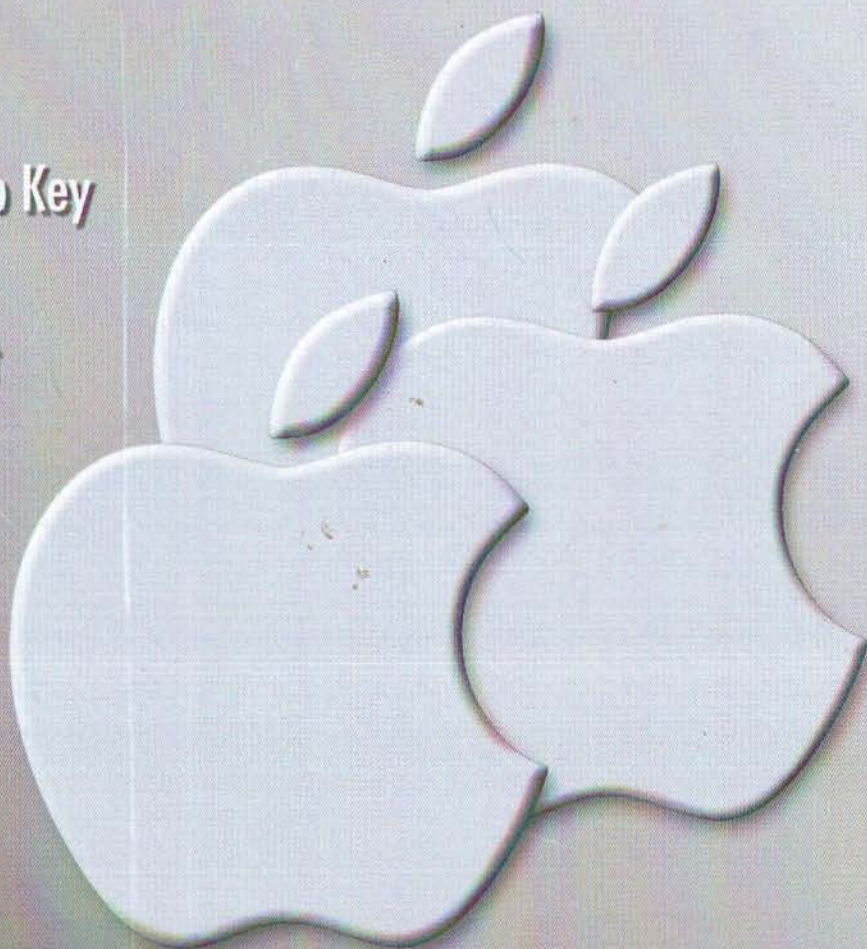
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# From the Editor

**W**hy are we here? That's always a good question to ask, and post-Macworld, having met many of our readers, I can say we're here to help! With Macworld behind us for now, we're going to continue the tech adventure right now.

Virtualization continues to be a hot topic just about everywhere, and the Apple world can't remain outside of its influence. Not only do we have Parallels, but the 800-pound gorilla of virtualization has released a beta of its product. While not a direct copy of any other product it makes, VMWare is releasing **VMWare Fusion** for the Mac in open beta testing. That's our cover story this month from first-time MacTech author **Ben Greisler**.

Perhaps it's the New Year rubbing off, but we have other new authors on board as well. **Allen Hancock** teaches us to leave the mouse alone and control our Macs through the keyboard only. A foreign concept to most Mac users! Secondly, **Bernard Escaich** brings us a how-to for the physical world: attaching speakers to an Apple display without compromising the Apple-aesthetics.

Speaking of the physical world, **Andrew Turner** is back with part 2 of his **home automation** article. Out of the explanatory phase, this article gives you everything you need to actually set up and control your universe.

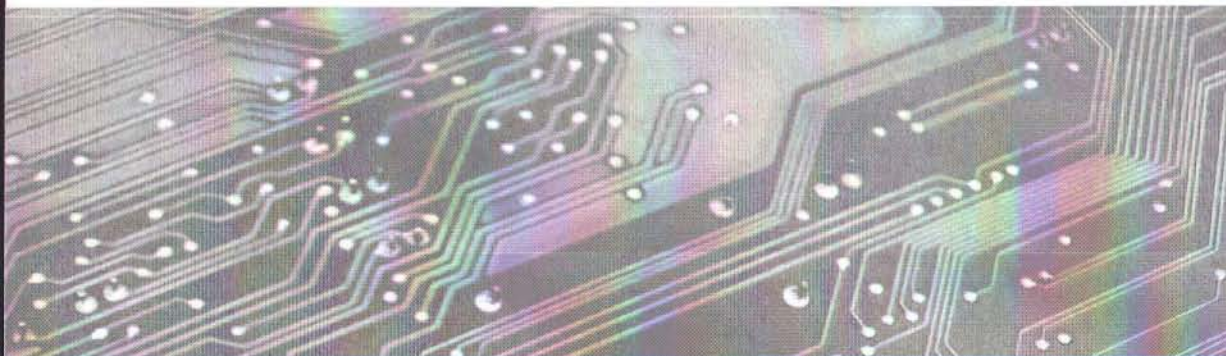
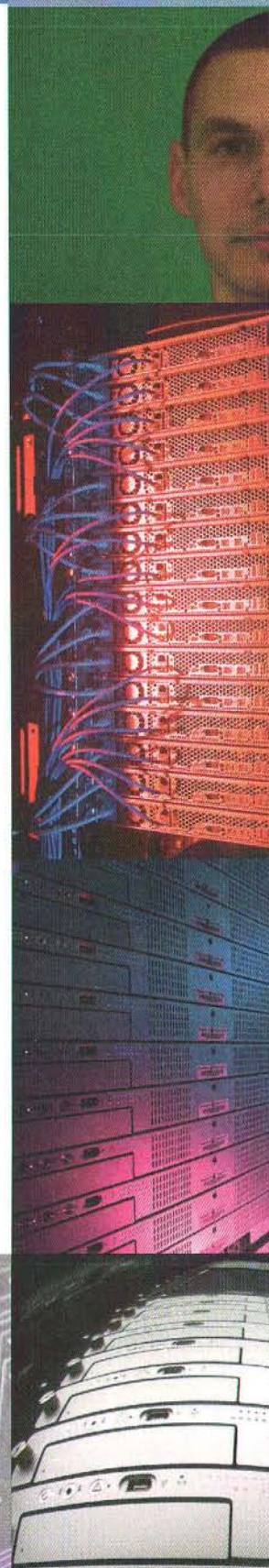
**Philip Rinehart** brings up an issue that is affecting many of us that are now using BootCamp and other virtualized environments on our Macs: how do we share data between the many (real and virtualized) systems that now live on a single machine? Oh, and make it secure! If this is something you've struggled with for yourself or someone you support, check out Philip's, "**Camping in OS X**".

Look for the regular **AppleScript Essentials** by **Ben Waldie**, and Mac in the Shell columns to help you with your scripting and automation needs.

We're also happy to have the MacTech Spotlight feature another great developer: **Mike Clark** from **Marketcircle**. Marketcircle has been a great force for Mac business with Daylite, and just released Billings during Macworld. Mike shares his history, views on Mac Development and more.

Finally, look for our **MacTech at Macworld** feature. If you were at the show in person or not, live vicariously through us for MacTech's point of view. We cover Macworld and how it impacts our community; the people involved and companies showing new products. Speaking of Macworld, we had some great conversations with people regarding the magazine's content. Likes, dislikes, hopes and ideas – and we're acting on them. But don't let that be the end of it! Continue the conversation, that's what e-mail is for, right? Have an impact. Talk to us at [feedback@mactech.com](mailto:feedback@mactech.com). Enjoy the issue, and I hope to speak to you soon!

Edward Marczak





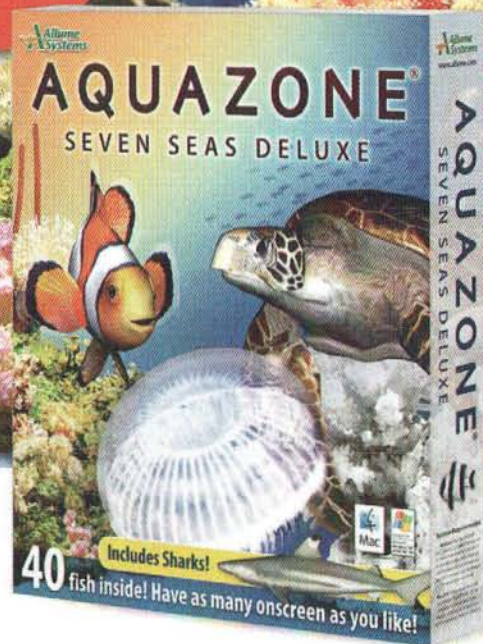
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# APPLESCRIPT ESSENTIALS

by Benjamin S. Waldie

## Introduction to Scripting Microsoft Excel

With Office 2008 on the horizon, Microsoft has recently begun to push AppleScript as an alternative automation technology to Visual Basic macros in the Office applications. Moving forward, Visual Basic macros will not be supported in the release of Office 2008. Current AppleScript users are ahead of the curve. The Office applications have been AppleScriptable for quite some time, and AppleScript actually provides several advantages over Visual Basic. For one, AppleScripts can interact with multiple applications, including non-Microsoft applications, allowing even complex multi-application workflows to be automated.

Last month, we began discussing how to get started with scripting Microsoft Word. We explored various techniques for interacting with Word documents, as well as the content within those documents, all using AppleScript. This month, we're going to begin discussing another Office application, Microsoft Excel. Like Word, Excel contains a quite extensive AppleScript dictionary, allowing almost any task that can be performed manually to be automated using AppleScript.

Please note, all example code within this month's column was written and tested with Excel 2004 (version 11.x). If you are using another version of Excel, please be aware that the terminology may need to be adjusted in order to function properly. Let's get started.

### Working with Workbooks

In Excel, the top-level class (beneath the application class) with which you will probably want to interact is a workbook. A workbook will contain one or more sheets, and those sheets will typically contain ranges of data. This data can be text, numbers, dates, and so forth. We will discuss each of these primary classes of Excel objects in this month's column, but we will begin with the workbook class.

### Making a Workbook

Creating a workbook in Excel is similar to the process of creating a document in Word, or in many scriptable applications, for that matter. To do so, use the `make` command, as demonstrated below.

```
tell application "Microsoft Excel"
    make new workbook
end tell
-> workbook "Sheet1" of application "Microsoft Excel"
```

The `make` command's result will be a reference to the newly created workbook, which may be placed into an AppleScript variable, if desired, for future reference in your script.

### Closing a Workbook

Closing a workbook is also very similar to closing a document in other scriptable applications. Use the `close` command, referencing the workbook you wish to close. Optionally, you may choose to specify whether the workbook should be saved during the close process, using the optional `saving` parameter. For example:

```
tell application "Microsoft Excel"
    close workbook 1 saving no
end tell
```

### Opening a Workbook

To open a workbook, use the `open` command, followed by a reference to the workbook file you want to open. For example:

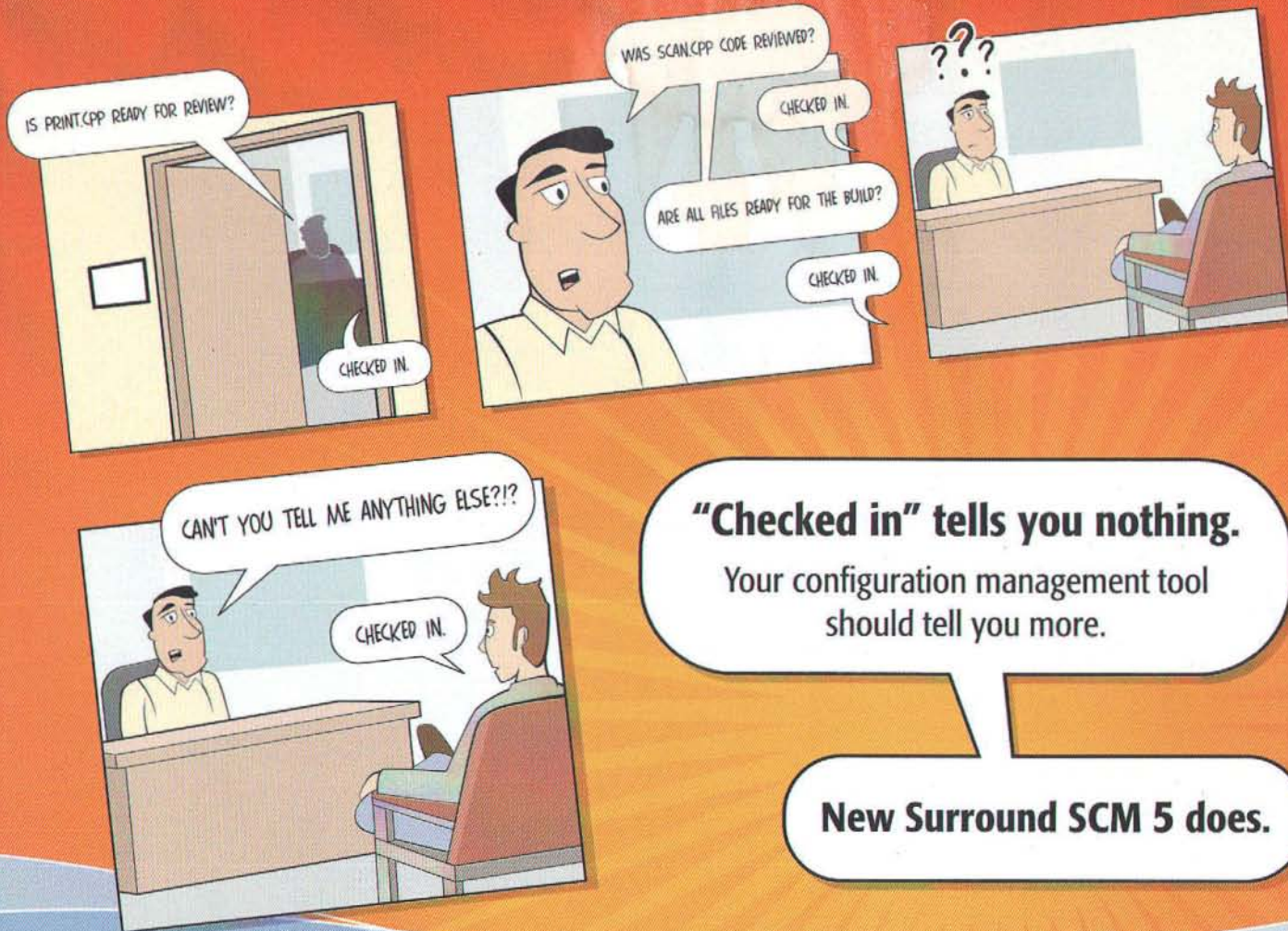
```
set theWorkbookFile to choose file with prompt "Please select an Excel workbook file:"
tell application "Microsoft Excel"
    open theWorkbookFile
end tell
```

One issue with the `open` command is that, unfortunately, it does not return a result. Therefore, if you want to perform further processing on the newly opened document, you will need to build a reference to it in another manner. One way to do this is to retrieve the workbook file's name, and then construct a reference to the workbook using that name, once it has been opened. This is demonstrated in the example code below.

```
set theWorkbookFile to choose file with prompt "Please select an Excel workbook file:"
set theWorkbookName to name of (info for theWorkbookFile)
tell application "Microsoft Excel"
    open theWorkbookFile
    set theWorkbook to workbook theWorkbookName
end tell
-> workbook "My Workbook.xls" of application "Microsoft Excel"
```

Another way that this can be achieved is by referencing the `active workbook` property of Excel's application class, once the workbook has been opened. This property references the currently active workbook, which should be the newly opened document.





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```

set theWorkbookFile to choose file with prompt "Please select
an Excel workbook file:"
set theWorkbookName to name of (info for theWorkbookFile)
tell application "Microsoft Excel"
    open theWorkbookFile
    set theWorkbook to active workbook
end tell
-> active workbook of application "Microsoft Excel"

```

When referencing the **active workbook** property, one thing to keep in mind is that, if another workbook is brought to the front, then your script may reference the incorrect workbook. Because of this, it is recommended to reference workbooks by name.

## Saving a Workbook

To save an opened workbook to its existing path, use the **save** command, referencing the workbook to be saved. For example, the following code will save the currently active workbook to its current path.

```

tell application "Microsoft Excel"
    save active workbook
end tell

```

Excel also has a **save workbook as** command, which may be used to save a workbook into a new location, or in a different file format. The following example code makes use of this command, as well as some of its optional parameters, in order to save the currently active workbook to the desktop in comma separated format.

```

set theOutputPath to (path to desktop folder as string) & "My
Saved Workbook.csv"
tell application "Microsoft Excel"
    tell active workbook
        save workbook as filename theOutputPath file format CSV
    file format
    end tell
end tell

```

Take some time to explore some of the other optional parameters for the **save workbook as** command, as well as some of the other available file formats, which can be found in Excel's AppleScript dictionary.

## Working with Sheets

As previously mentioned, a workbook itself does not contain data in Excel. Rather, a workbook contains sheets, which contain the data. Most often, you will find yourself writing a script that will interact with a worksheet, a specific type of sheet in Excel. That's what we will be discussing here. Another type of sheet, which we will not discuss at this time, is a chart sheet.

## Making a Worksheet

Like a workbook, a worksheet is created by using the **make** command. When using this command, be sure to specify a location for the new worksheet to be created, such as **beginning**, **end**, **before worksheet 1**, and so forth. For example, this code will create a new worksheet at the end of the existing worksheets within the currently active workbook.

```

tell application "Microsoft Excel"
    tell active workbook
        make new worksheet at end
    end tell
end tell
-> sheet "Sheet2" of active workbook of application
"Microsoft Excel"

```

## Selecting a Worksheet

At times, you may want to navigate to a specific worksheet in an Excel workbook. To do this, use the **activate object** command, and target the worksheet that you want to be displayed. For example:

```

tell application "Microsoft Excel"
    tell active workbook
        activate object worksheet "Sheet1"
    end tell
end tell

```

## Working with Data

In an Excel worksheet, data is contained within cells, which are organized into rows and columns. Cells can be accessed by referencing the **cell**, **row**, **column**, or **range** class.

### The Cell Class

To access a specific cell, use the **cell** class. For example, the following code references the first cell of a worksheet, found in column A, row 1.

```

tell application "Microsoft Excel"
    tell worksheet "Sheet1" of active workbook
        cell "A1"
    end tell
end tell
-> cell "A1" of worksheet "Sheet1" of active workbook of
application "Microsoft Excel"

```

### The Row Class

To access an entire row of cells, use the **row** class. For example, the following code references the first row of cells in a worksheet.

```

tell application "Microsoft Excel"
    tell worksheet "Sheet1" of active workbook
        row 1
    end tell
end tell
-> row "$1:$1" of worksheet "Sheet1" of active workbook of
application "Microsoft Excel"

```

### The Column Class

To access an entire column of cells, use the **column** class. For example, the following code references the first column of cells in a worksheet.

```

tell application "Microsoft Excel"
    tell worksheet "Sheet1" of active workbook
        column 1
    end tell
end tell
-> column "$A:$A" of worksheet "Sheet1" of active workbook
of application "Microsoft Excel"

```



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## The Range Class

Regardless of how you reference cells within a worksheet, you are really referencing what is known as a **range**. A **range** refers to either a single cell, or multiple cells within a worksheet, and the **cell**, **row**, and **column** classes all inherit the properties of the **range** class. There are numerous ways to directly reference a range. The following are some examples.

This code demonstrates how to reference a range that represents a single cell in a worksheet, in this case, the first cell in the first row, i.e. the intersection of column 1 and row 1.

```
tell application "Microsoft Excel"
  tell worksheet "Sheet1" of active workbook
    range "A1"
  end tell
end tell
-> cell "A1" of worksheet "Sheet1" of active workbook of
application "Microsoft Excel"
```

This next example demonstrates how to reference a range that represents multiple cells within a worksheet, in this case, cells 2 through 5 of the first two rows.

```
tell application "Microsoft Excel"
  tell worksheet "Sheet1" of active workbook
    range "B1:F2"
  end tell
end tell
-> range "B1:F2" of worksheet "Sheet1" of active workbook of
application "Microsoft Excel"
```

Again, there are numerous ways to reference a range of cells, and Excel is pretty flexible. For a chart that outlines different methods, take a look at the AppleScript Reference Guide for Excel, mentioned later in this column.

## The Used Range

In some cases, you may not know specifically which range you want to reference. For example, you may just want to reference all of the data contained within a specified worksheet. To do this, you can reference the **used range** property of the worksheet.

```
tell application "Microsoft Excel"
  tell worksheet "Sheet1" of active workbook
    used range
  end tell
end tell
-> used range of active sheet of active workbook of
application "Microsoft Excel"
```

## Properties of Ranges

We have discussed numerous ways to reference ranges of cells in Excel. However, what can you do with a range once you have constructed a reference to it? Well, one thing you can do is access its properties. Ranges have numerous properties, but perhaps the two that you may find most useful are the **value** and **formula** properties.

By referencing the **value** property of a range, you can retrieve the value of a specified set of cells in a worksheet. For example, the following code retrieves the values of the used range in a specified worksheet. Notice that the value is returned as a list of lists. Each list represents a row, and each list item represents a cell.

```
tell application "Microsoft Excel"
  tell worksheet "Sheet1" of active workbook
    value of used range
  end tell
end tell
-> {{1.0, 2.0, 3.0}, {4.0, 5.0, 6.0}}
```

The **formula** property of a range returns a similar result. For example:

```
tell application "Microsoft Excel"
  tell worksheet "Sheet1" of active workbook
    formula of used range
  end tell
end tell
-> {{1, 2, 3}, {4, 5, 6}}
```

Of course, these properties are not read-only properties. So, it is also possible to modify them, if desired. For example, the following code demonstrates how to set the value of a single cell.

```
tell application "Microsoft Excel"
  tell worksheet "Sheet1" of active workbook
    set value of cell "A1" to "A"
  end tell
end tell
```

Likewise, the following code will set the value of a range of cells.

```
tell application "Microsoft Excel"
  tell worksheet "Sheet1" of active workbook
    set value of range "A1:C2" to {"a", "b", "c"}, {"d",
    "e", "f"}
  end tell
end tell
```

## Pulling Things Together

Now, let's take a brief look at some sample code that makes use of several of the topics that we have discussed throughout this month's column. The following example code will retrieve the names of any visible items on the desktop. It will then create a workbook, and insert the list of item names into the active worksheet.

```
- Retrieve a list of items on the desktop
set theFileNames to list folder (path to desktop) without
invisibles

- Convert the list of items to a list of lists
repeat with a from 1 to length of theFileNames
  set item a of theFileNames to {item a of theFileNames}
end repeat

- Build a new workbook in Excel, and add the data to the
current worksheet
tell application "Microsoft Excel"
  set theWorkbook to make new workbook
  tell active sheet of theWorkbook
    set value of range ("A1:A" & (length of theFileNames))
to theFileNames
  end tell
end tell
```

## In Closing

It may seem like we've only scratched the surface of scripting Excel, and we have. As mentioned at the beginning of



this month's column, Excel contains quite an extensive AppleScript dictionary, and there is a lot that you can do with it from a scripting perspective. However, using the techniques we have discussed in this month's column, you should be able to piece together a script that can construct a workbook, create a worksheet, retrieve data from a range of cells in a worksheet, and more.

For more information about scripting Excel, be sure to download the Excel AppleScript Reference Guide that I mentioned earlier. This can be found on the Mactopia website at <http://www.microsoft.com/mac/>. It is located in the Resources > Developer Center > AppleScript Resources for Office 2004 section.

Until next time, keep scripting!

MI

## About The Author



*Ben Waldie is the author of the best selling books "AppleScripting the Finder" and the "Mac OS X Technology Guide to Automator", available from <<http://www.spiderworks.com>>, as well as an AppleScript Training CD, available from <<http://www.vtc.com>>. Ben is also president of Automated Workflows, LLC, a company specializing*

*in AppleScript and workflow automation consulting. For years, Ben has developed professional AppleScript-based solutions for businesses including Adobe, Apple, NASA, PC World, and TV Guide. For more information about Ben, please visit <<http://www.automatedworkflows.com>>, or email Ben at <[ben@automatedworkflows.com](mailto:ben@automatedworkflows.com)>.*

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# Virtual Choices on the Mac

## VMWare brings their wares to Intel Macs

By Ben Greisler

### Introduction

In the November 2006 edition of MacTech, Mary Norbury introduced us to the Macintosh virtualization product Parallels. For many Mac users this was their first exposure to virtualization. Virtualization shouldn't be confused with emulation, which is the complete interpretation of an environment – including the processor. An example of this is VirtualPC running on PowerPC (never mind the name; VPC for PPC is an emulator, not a virtualizer).

Virtualization doesn't emulate a processor, but allows multiple instances of an OS, or multiple OSes, to have access to the same processor or pool of processors while isolating the environments that the OSes are running in. This is a very simplified view of what virtualization and emulation do, and most products do some amount of both. The discussion of emulation versus virtualization could fill this magazine and then some, so we are going to concentrate on the latest virtualization product to hit the Macintosh world, VMware's Fusion.

While Parallels is an impressive product coming from an impressive group of developers, Fusion is what will grab the attention of enterprise and large education organizations, as they are probably already familiar with the VMware product range. VMware's ESX Server, Workstation and Player already have mindshare in groups using virtualization. While Fusion is still in beta, and we will have to wait to see what VMware decides to do with the product, it is still interesting to put it through its paces and see what we have.

### Installation

The test machine is my often abused MacBook Pro 2.16 Core Duo with 2GB RAM and a 7200 RPM 100GB hard drive. I don't have a Core 2 processor available to me, so 64 bit testing was not possible. As testing started about 24 hours after the beta

was released to the public, changes and updates will probably come quickly. The following information is based on Fusion build 36932.

The Fusion beta is available at <http://www.vmware.com/products/beta/fusion/>, and after filling in a quick questionnaire you will be presented with the EULA. Once you agree, you will be brought to a page that has the serial number for the beta software and a link to the actual download (an 111 MB .dmg).

Installation is a straightforward .pkg file. Double click and follow all of the normal software installation steps. Note that in the mounted .dmg, you will find a readme, license information and an uninstaller script. You may want to copy the script over to a safe place in case you ever need it. I did it as I have a habit of throwing away the installer packages to save space on my hard drive and trust me, once you start downloading all the pre-made VM appliances available out there, you will need the space.

### Pre-made Virtual Appliances

One of the big attractions to VMware is the existence of their Virtual Appliance Marketplace <http://www.vmware.com/vmtm/appliances/>. You can get to the website via the above URL, the VMTN button on the Welcome Screen or "Download Virtual Appliances" under the File menu. This website is a collection of free and for fee pre-built, pre-configured virtual machines. Want to try out Smoothwall, but didn't have too much extra time to devote to the machine setup and installation of it? Just download the pre-built VM. How about wanting to compare Ubuntu to Red Hat? Download the VM's for each, fire them up and compare away. It is very convenient and quick.



The website is indexed and searchable. I suggest just skimming through the entire list to get an idea of what is out there. Some VMs have been certified by VMware using a standardized criteria set. Their goal is to allow developers to submit their VMs for certification so users will have confidence in the VMs and have support available to them. There is also a rating system with a one to five star choice. To read comments about the VM, click on the "Comment on this Appliance" link on the right side of the page under the star rating.

Once you pick a VM, download it in the manner provided. This could be http or BitTorrent. Other download methods may be available, but everything I saw was one of those two. I did find that the Torrent methods weren't quite as quick as I would have expected, but there are probably very few people sharing out the files. In fact one VM I downloaded came from only two partners.

It pays to read the notes provided on the information page, the comments and the readme files. Because this is a community effort for most of the appliances, there isn't as much standardization as there could be for the location of import information such as the login usernames and passwords.

Most of the VMs come compressed as a zip. Expand the file and place it into the "vmware" folder. The location of the folder can be defined during installation of the app, but will default to the users home directory. Once the VM resides in the "vmware" folder, you can open the VM using the Open button in the Welcome Screen, or under the File menu. Easy as that.



Figure 1: Opening a pre-built VMWare Image

## Configuring Fusion

Once a VM is running, you are presented with its window and a group of buttons across the top of it. Starting from the left side:



Figure 2: Control buttons on VM Toolbar

**Power Off:** This button provides an equivalent to the actual power button (OFF) of a physical machine. If you click it, it provides a dialog box confirming that you want to shut down the guest operating system.

**Suspend:** This allows you to close the VM while saving the state that it is in. This provides the ability to start a VM without having to go through the booting process of the VM – leaving you right where you were. Once pushed it will show a progress bar for the duration of state saving and then eventually show a black screen. It is up to the user to close the window all together or push the Resume button to start the VM again.

**Power On/Resume:** This button provides the equivalent to an actual power button (ON) of a physical machine. It shows "Resume" when the VM is suspended.

**Settings:** Clicking this will allow you to change a number of system settings for the VM you have loaded. All of the settings give you the choice to "Connect this device" and "Connect automatically when powering on". Keep in mind that physical hardware can only be in use by one VM at a time, so for example, you won't be able to connect the optical drive to three VMs while they are all running.

**Shared Folders** (Figure 3): To add a shared folder you need to click on the "+" button at the bottom of the window and supply a name and path to the shared folder. This relies on VMware Tools being installed. Even at that, I had issues with getting shared folders working. I didn't beat it up too much as this is beta and I expect that things will get better.

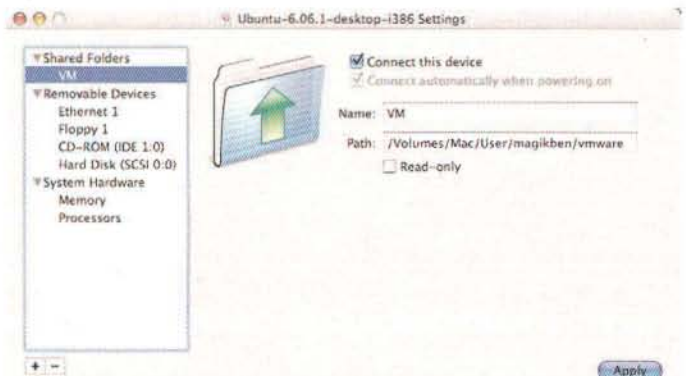
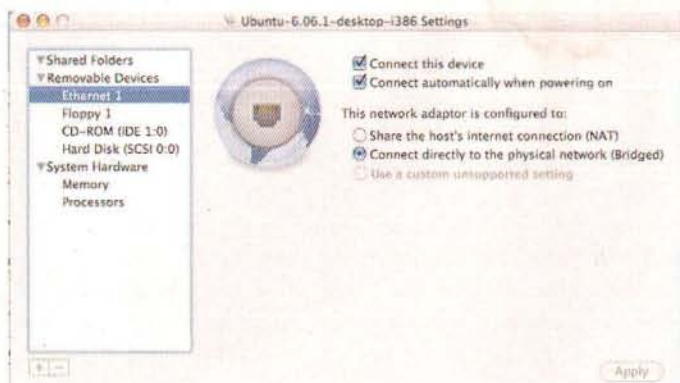


Figure 3: Shared folder settings.

**Removable Devices** (Note: Some of these choices will not be available depending on the VM):

**Ethernet** (Figure 4): It is here that you can configure the VM to connect to the physical network or to share the host's connection via NAT. If you choose NAT, the VMware virtual DHCP server will provide the address. Pay attention to which choice you want as much as you would on a real, physical machine.



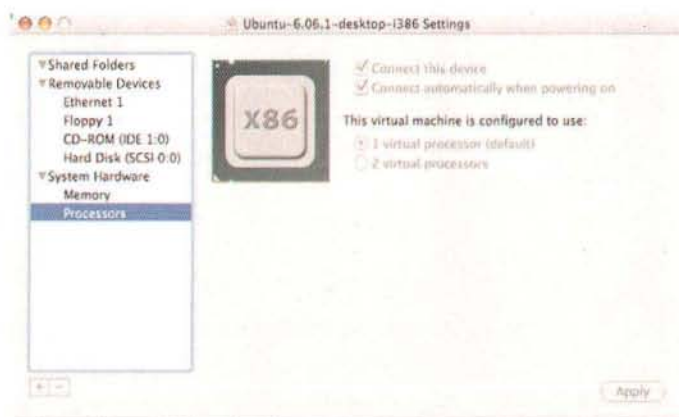


**Figure 4: A virtual machine's Ethernet settings.**

The following removable devices are supported, but have no configuration options besides on or off: sound adapter, CD-ROM, floppy drive, hard disk and USB controller.

**System Hardware Memory:** The assigned memory can be adjusted in this window. There will be a recommended value but you can increase this if you have the available RAM. You have to be very careful with this setting as you need to account for how many VMs you have running and how much RAM you assign as not to force your physical machine into swapping. This will drag the speed down for all applications and the host machine. You will want to visit your command line and look at the behavior of memory on your host machine. Using tools like Activity Monitor or top, make sure your pageouts aren't too high and adjust VM memory as needed.

**Processors** (Figure 5): You can assign one or two processors to the VM. This will be set when the VM is made. This is an advantage over Parallels, which can only use one processor, or a single core, at a time for a given VM.



**Figure 5: SMP capabilities of a VM.**

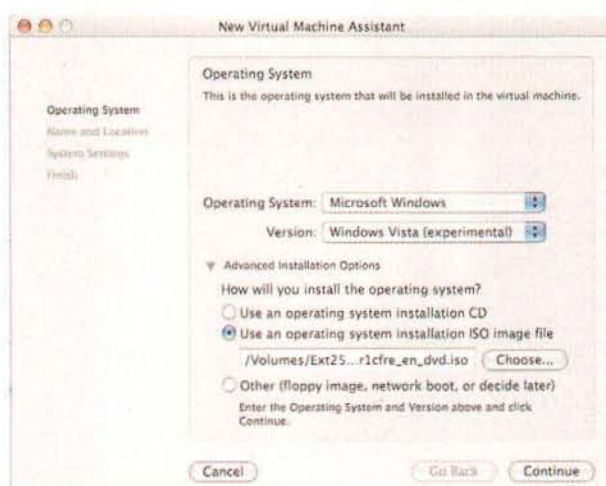
**Full Screen:** Clicking on this will toggle full screen mode. To get out of full screen mode, place your mouse at the top of the screen and the tool bar will come into view. Click on View and "Toggle Full Screen", or you can use the command-return key combination.

Notice that the CD-ROM, Floppy and Ethernet devices have green dot indicators when they are connected to the physical device or in the case of Floppy, the floppy image. This is handy when you have multiple VM's running and you need to access a physical device that is currently connected to another VM.

## Building a new Virtual Machine

Unlike the free VMWare Player for Windows, Fusion allows you to create virtual machines. The process is fairly straightforward.

1. Using the New Virtual Machine Assistant (Figure 6), choose the operating system you will be using. Pick whether you have the installation on a physical CD or in an ISO. If you are using an ISO, provide the path to it.



**Figure 6: Creating a VM**

2. You will then be asked for a name for the VM and a location for it to reside. The default is in a folder named "vmware" in the root of the users home folder.

3. Under System Settings you will define the size of the virtual disk. A recommended default will be assigned, but you can change it to whatever you want. As of this version there is no easy way to expand an existing virtual disk so you will want to carefully consider the size you want. You will also set the memory allocation and number of processors – the latter being an advanced option that currently doesn't exist in Parallels. It would be useful to restrict a VM to one processor if you plan on running multiple VMs simultaneously.

4. Once you have completed the previous steps, you will get to the point where you actually install the OS. You have configured the VM and you will have your choice of installing the OS immediately or wait until a later time.



5. At this point the VM will start and because the product is still beta, a warning will pop up explaining that debugging is running and may affect performance. You can permanently dismiss this warning if you wish. [Ed. Note: this is a little disappointing, even for a beta. Running debug code that affects performance should be optional.]

6. The VM will behave like a standard physical machine and installation will start (Picture 11)

7. Once installation is complete, you will have a working OS within the VM

## Installing VMware Tools

The VMware Tools provide better graphics performance, drag and drop support, time sync between host and VM, automatic cursor control as it travels in and out of the VM, and a better behaved mouse in some OSes (within the VM). It is highly recommended that you install the VMware Tools package.

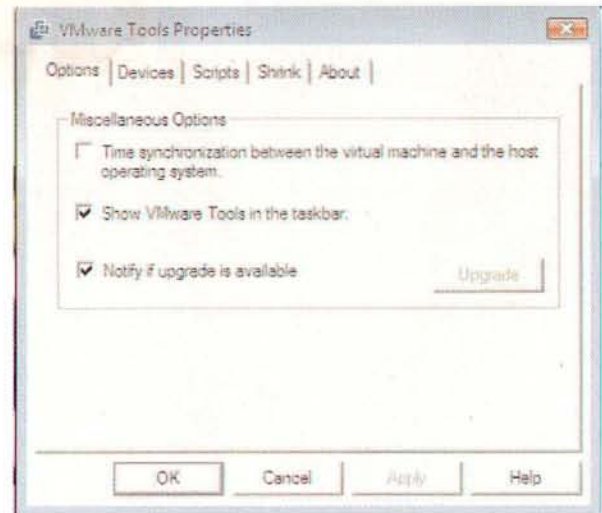
Installing the package in Windows Vista or XP is as easy as clicking on a menu item. Make sure the guest OS is running within the VM and pull down the Virtual Machine menu. Choose Install VMware Tools and a wait a moment while the tools package is mounted in the guest OS. A regular installation dialog will ensue with the caveat that, "The tool package isn't certified by Microsoft", forcing you to acknowledge a number of "Do you really want to do this?" type queries. Follow the directions and the process will complete.

In Linux or any of the xNIX'es, you follow the same general process, but when you click on the Install VMware Tools button, a virtual DVD-ROM is mounted in the guest OS. You will be presented with two packages, a tar and an rpm. In this case, I'm using Ubuntu Linux, and I expanded it out. I changed directory to the resulting folder and ran the installer: "sudo ./vmware-install.pl".

## Using VMware Tools

To configure VMware Tools in Windows, there is an icon for VMware Tools in the taskbar. In a Unix variant, navigate to /usr/bin and run vmware-toolbox as root. In either case, a Properties box will pop up with a number of choice that may differ with the guest OS you are running. Note that the help buttons are enabled, but may include information for versions of VMware that is not correct for Fusion and at this time, we can't really say what will end up in the production version.

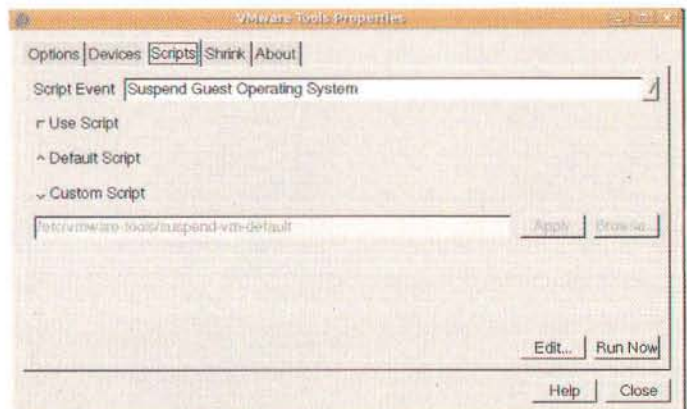
**Options:** (Figure 7) You can choose to keep the guest OS synced with the host OS, notify if an upgrade is available and or show the VMware Tools in the taskbar (Windows only – Unix tools only allow for time sync).



**Figure 7: Guest OS options with VMWare Tools installed.**

**Devices:** This allows the user to connect or disconnect devices from the VM, just like the icon at the top of the VM window.

**Scripts** (Figure 8): At this point in time we probably shouldn't change the defaults here. While the help pages give us information about the scripts, they also warn that it will only work with certain versions of VMware. That said, this is beta software and none of the notes in the help pages make reference to the beta. We can't tell what will result if we make customized scripts. While I was tempted to start experimenting, we are too early in the beta cycle to know if it is worth the effort.



**Figure 8: Preloaded and custom scripts for a given action.**

**Shrink:** This is where we can shrink partitions. Simply pick the partition you want to shrink and click Shrink. The partition will be prepared and when finished preparing it you can perform the shrink at that time or wait until later. I suggest reviewing the help pages for your specific installation for recommendations on this topic. This



process will reduce the amount of space that the virtual disk takes up on the host machine. There are many notes about what can be shrunk and what can't be, but they also refer to versions of VMware that do not apply to the beta. For example they note that VMs with snapshots can't be shrunk. Also, the help notes state that the disks can be defragmented, but there are no tools for that in the current beta.

**About:** Information about VMware Tools and version number.

## Running VMs

On the first run of a VM, you may get a warning box asking you what to do about the UUID because the location of the configuration file has changed. The directions are self-explanatory, but you won't go wrong by choosing "Create a new identifier". The UUID is comprised of a 128 bit integer based on the path to the VMs configuration file and the physical machines identifier. If you want to get into the details, you should keep the UUID if you moved the VM, but create a new one if you made a copy, and are still using the original VM. You can use Always Create if you are using one VM as a template and keep moving it to new locations. This will make a new UUID for each location. This is similar in concept to Always Keep but used if you want to keep the same UUID each time you move the VM.

When you start a VM when another VM is running, you will get a dialog box that lets you know that some devices on the host machine may not be available to the VM. You may need to toggle the buttons for the devices on or off as necessary to get the resource you need, like an optical drive. You may also get a warning that a certain device may not be available at all. This may be due to a pre-made VM that was build on a machine that had a certain device available, such as a floppy drive, and is now being run on a host machine that doesn't have that same device.

## Final Words

Keep in mind that this is the first public beta of Fusion. VMware has not said what their production plans are, or if we are looking at something representative of the final product. It is tempting to want to put this into production, but it is too early. I ran into one kernel panic when something went bonkers with my Vista install.

It is tempting to compare Fusion with Parallels. I think it would be a mistake at this point, not knowing what VMware has up their sleeve. I can say that right out of the box Fusion worked better than Parallels did at its first release, but there are also less choices and configurations to play with. Some things that I noticed is that Fusion seems to take less system resources than Parallels, but that could be just the way I have configured my virtual machines. Running Windows VM's on Parallels seem to really drag down the host system whereas Fusion doesn't impact the CPU as much.

VMware has the advantage of having a mature product to draw code from and experience making it work. They also have the advantage of an established base of expertise and the pre-made appliances. I am glad that VMware brought out Fusion but I hope they don't limit this to a lower level product. I would really like to see them produce something along the lines of ESX for the Apple platform. We also need to see if they are allowed to virtualize OS X itself, but that is a political issue that is yet to be resolved at the time of writing this article.

The end result is this: We now have two major choices for virtualization on the Mac platform. I don't include Qemu (qemu.org) as it is primarily an emulator, not virtualization. We are much further ahead than we were a year ago. This is all just great stuff for acceptance of the Mac platform in areas that that it hasn't been in before. Let the developers know what you think and what you want.

**MM**

## About The Author

*Ben has worked Apple based technology integration projects from Maine to Japan while learning all the way. When not collecting frequent flyer miles he spends his favorite time with his wife and 2.5 year old daughter at their home outside of Philadelphia. He can be reached at [magikben@mac.com](mailto:magikben@mac.com)*

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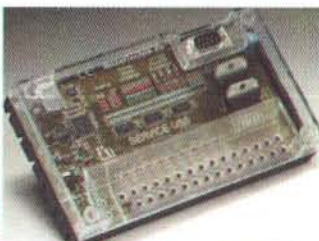
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# Pwn your Tab Key

## Mice are for wimps

By Allen Hancock, ACTC

If you don't know me, and as this is my first published article, you probably don't, you may not know that I am a zealot. There are many aspects of the Mac experience I feel strongly about. Of course, only Apple controls the hardware, so I tend to focus on what we can improve on: the software that we can use to make our computing experiences better. This article will discuss software that touches on how we use the hardware, namely the Tab Key.

It all starts with Command Tab. This venerable command is probably in everyone's bag of tricks, but I would be remiss if I didn't start here. In case this is new to you, go ahead and use this keystroke now, but don't release the command key yet. What you see is the Application Switcher with a list of running applications right there at your fingertips. Keep hitting tab to move the highlight over to your desired application, let go of the command key, and you are golden – it comes to the front. Is your application too far to the right side of the list? Using shift-tab will cycle you backwards in the list. I will touch on the shift key again later.

Remember how I said I like to run a few different applications to help me out? QuickKeys, DragThing and QuickSilver are great tools, but rarely needed in the foreground. They need to be running, but I would rather not have to tab past them. Enter LiteSwitch by Proteron. This small app will allow you to resize and/or relocate the Application Switcher bar. What I particularly love about it, is that it can omit given applications from the tab cycle – even if the app in question itself can't hide its icon. No more hiding an app from the dock making it hard to activate, just get it off your application switcher with LiteSwitch. Of course, there is even more to LiteSwitch, so, please take a look for yourself. Download it at <http://www.proteron.com/liteswitch> (30 day trial, currently \$14.95 to purchase).



ing Now!

Figure 1-LiteSwitch and its options

So, now we can switch from our email client to our web browser with ease, but what if you want to bring up your RSS reader? Enter Quicksilver, freely downloadable from <http://www.blacktree.com>. Quicksilver is an application you can configure every which way from Sunday, and many of you have already done so. The basics, though, are useful and easy to pick up. Because Quicksilver is first a launcher application, it seemed natural to me to involve the Tab key. On my system, I can use a fat thumb to hit "Command-Option-Tab" to bring up Quicksilver in all its launching glory. Because I move from computer to computer so often in my work, leaving Spotlight in its default Command-Space helps me as I would just as soon as not have to remember too many non-standard keys.

OK, so Command-Option-Tab opens my desired applications, and Command-Tab toggles me between apps. But



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The first participant to crack the software protection system and demonstrate that the protected program can run without the dongle and to also supply the cracking methodology and the secret message found in the program will be declared the winner. There will be only one winner. In the event that two or more contestants present a successful solution, the contestant to submit the solution first will be declared the winner. The declared winner will receive the prize of \$US 40,000.00.

Anyone can participate in the competition after registering at the [www.hackers-contest.com/register](http://www.hackers-contest.com/register), accepting the participation rules, and paying a fee of \$US 40.00.

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what if I want to get to a different window within an application? Being the serial window-opener I am, I might have five or ten browser windows open at any given time, twelve or more emails, etc. Which one do I want at a given moment? Witch can tell me!



**Figure 2-Witch in action, showing just my Camino windows.**

Let's get comfortable with what we have so far. Everyone hit Command-Option-Tab to trigger Quicksilver, type in "Saf", hit the enter key, and Bam!, we have Safari running. Browse over to <http://petermaurer.de> (Command L gets you to your location bar... no cheating with your mouse) and look for Witch on the lefthand menu. Once you get this PrefPane installed, let's set it to respond to Option tab. (Which is donationware.)



**Figure 3-Which tab settings.**

Now, you will see I have "All applications" set to nothing. When I am looking for something I have open on my computer, chances are I know which application it is, and I feel no need tab past all my browser windows to get to that email I am working on...

Another window switching trick, still closely related to the whole command-tab subject is Command-`. See it? It's right there above the Tab key. If you don't have too many windows open in an application, or if you know just which level the window you want is buried in, Command-` is great for cycling through the non-minimized windows of your current program. That this is built into the system is an extra-added bonus. Thanks Apple!

With all these keys available now, you be able to move from application to application and window to window with the greatest

of ease. Giving that mouse, and your precious wrists a rest. But what about within a program?

Here is another favor Apple has done for us, Full Keyboard Access

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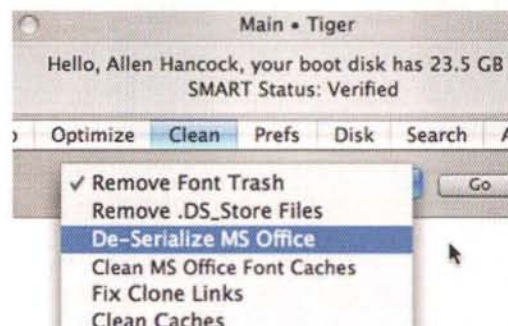
In windows and dialogs, press Tab to move the keyboard focus between:

- ☐ Text boxes and lists only
- ☒ All controls

To change this setting, press ^F7.

**Figure 4-Look in the Keyboard Shortcuts section of Keyboard & Mouse PreferencePane, or Tiger users, type Control-F7**

With this feature enabled, your mouse usage will drop considerably. Smart application developers allow mouse-haters like myself to move through the application with ease. Even complex programs with tons of features, like Mac HelpMate, are easily navigable with just the Tab key and a space-bar. Full Keyboard access makes navigating a matter of tabbing the blue highlight from control to control, then pretend your space-bar is the mouse button, and magic is made!



**Figure 5-Note the blue highlight on the pop up menu, no mouse use here!**

Yes, that's right. I got into a pop up menu with no mouse. Think of how happy you will be the next time you tab from the City field to State, and can select your state without having to reach for the mouse, click on the menu, and fight the scrolling menu! Next time, tab the blue highlight onto the pop up menu, hit the space-bar to activate it, type your state, then hit return or enter to make your choice. (NB That is in Safari, other browsers will treat the menus differently, but in any case, you can leave your mouse alone.)

So, developers, please, take this into consideration as you build your apps. For example, Splash ID is OK, but wow, how much more useful would it be if I could make it through the app without having to grab my mouse and click time after time to make a new entry...

Remember how I said the shift-tab keystroke was important? Here is why: Apple has made it a pattern to put the control you are most likely to need at the end of the line of items to tab to. A



bit odd at first, but once you realize this, holding down the shift key and hitting tab is as natural as can be. Next time you are installing a .pkg file, give this a shot. You will find that in every case, Shift-Tab brings the blue highlight to the button for continuing with the installation. As an extra-added-bonus, shift-space activates the control just the same as the space-bar alone, so just keep that shift key down, and you will be through those installer screens lickety-split.

Let's recap a little bit. If you've installed the behavior-enhancing apps mentioned in this article:

To start with, the Tab key can bring you from control to control in your web-browser, and most applications.

Command Tab will bring you to the application you want.

Command-Option-Tab for Quicksilver, in case the app you want isn't open.

Command-` to move to the window you are looking for.

Option-Tab to bring up that list of windows in your current application

Space-Bar – use it instead of a click when in using a Full Keyboard Access control

Also built into the system are ways to activate the dock and menu. While the default controls are a bit hard to get used to: Control-F2 for the menu, and Control-F3 for the dock. Once you have activated the dock or menu bar, your arrow keys will move you, and the Return or Enter key will activate your selection. These controls are admittedly a bit convoluted, but since they are built into the system, knowing these controls has come in handy in situations where the mouse isn't working. Of course, this and so many controls are editable in the Keyboard Shortcuts area of the Keyboard & Mouse Preferencepane.

Before we end, here is a bonus tip. As you get more and more used to tabbing through your controls, you will find that every once in a while you will get the little blue box stuck. I was setting up a signature in Mail.app, and sure enough I could tab into the signature block, but once inside, the tab key was just another keystroke. Control-Tab to the rescue! Yep, use the Control-Tab key to free your little blue box and move on to bigger and better tasks.

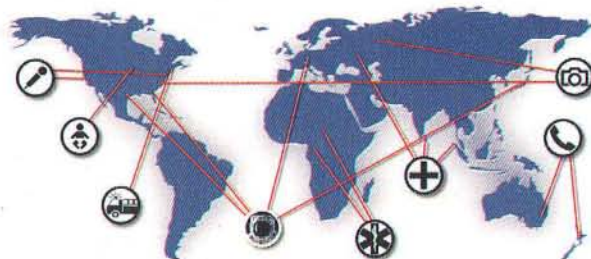
Add this all up, and your mouse may even start to gather dust, and your carpal tunnels may just thank you in the end. Happy keyboarding everyone!



### About The Author

*Allen Hancock has been providing on-site and remote based support based in Baton Rouge, Louisiana since 1997. He is a member of the Apple Consultants Network, and an Apple Certified Technical Coordinator. When not working, he spends time with his wife and son. Of course, they might want to know just when that is ;-)* He can be reached through his web-site [www.hancockconsulting.net](http://www.hancockconsulting.net)

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# Automate Your Place, part 2

*Have your Mac brew your coffee and take care of the lights on your way out*

By Andrew Turner

## The Story Continues

In part 1 of Automate Your Place we covered the basics of automation on a Mac, including the available software packages and hardware pieces you will need to get started. At the end of the article, we designed an example system for a small office or home and chose the components necessary for some basic control of our devices. In Part 2 we'll actually put this system together, connect it through software, write some scripts, and begin using the system.

To review, we are going to be controlling the following devices in our office: coffee maker, overhead lights, desk lamp, door and window closures, and a stereo system. Additionally, we want to integrate the system with our existing switches to keep the transition to an automation system transparent to other members of the office. Our bill of materials is shown in Table 1.

Component	Device
Computer Interface	PowerLineV2/SignalLineRF pair
Coffee Maker	ApplianceLine V2
Overhead light switch (2)	SwitchLine V2
Desk Lamp	LampLine V2
Stereo	ApplianceLine V2
Doors, windows (6)	Powerflash or DS10A
Wireless transceiver	W800-RF32

**Table 1: Components for a Sample Office Automation System**

In Part 1, we also discussed the various software options. Currently, Perceptive Automation's Indigo is the most active and full-featured automation software for the Mac. We'll use Indigo for discussion of this article. You can get a 30-day demonstration copy of Indigo from Perceptive Automation's website.

## Layout

Using our list of components and appropriate automation devices, we plan the layout of how we're going to hook all of our components up. I suggest making a floorplan of your office either on paper, or in a sketch tool like OmniGraffle. Also, make a copy of the table with component, device, and column for "Device ID". All Insteon devices come with an **address** that is a unique 6-character identification of the device (e.g. 01.FC.09).

Before we can start controlling devices, we need to install and setup our Insteon system. There are 3 major hardware components: PowerLine V2 that connects via USB to our Mac and plugs into a wall outlet, a pair of SignalLine RF modules that plug into wall sockets around our office and handle receiving and rebroadcasting Insteon signals over the powerline and redundancy via wireless communication and lastly, an ApplianceLine V2 or LampLine V2 module that will plug into a wall socket and our device and handles turning on/off that device. A diagram of these devices is shown in Figure 1.

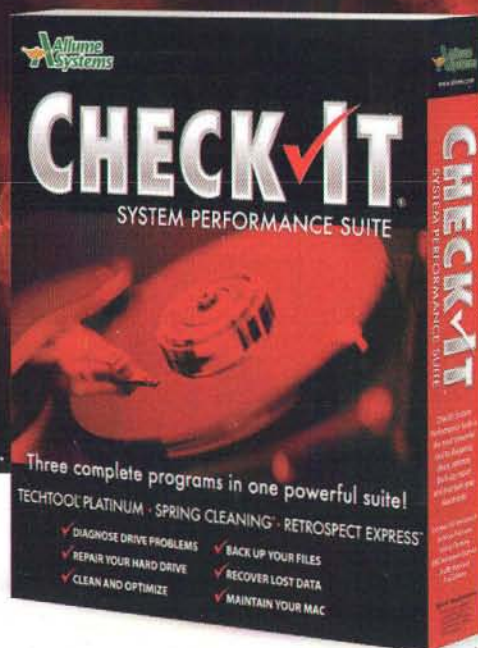
To begin setting up the system, plug the PowerLine V2 module into a wall outlet near your Mac and connect the USB interface to your Mac. Start Indigo and go to Preferences to configure the interface. Choose the appropriate "Interface Type" for what you have installed, and click "OK".



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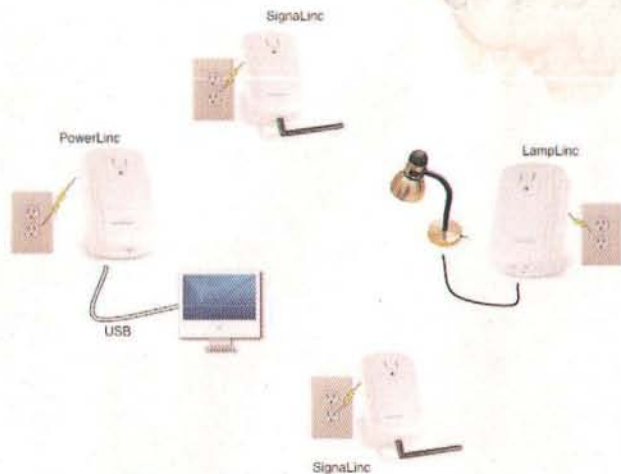
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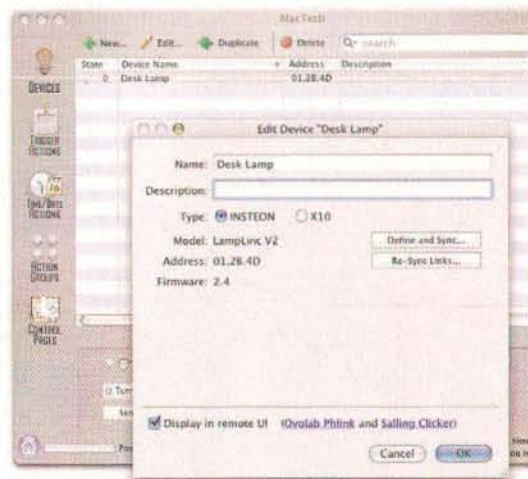
**Figure 1: Layout of Insteon modules**

Plug in the Signalinc RF modules at different places in your office or building. These modules need to be separated, to assist in making the Insteon system robust as they offer mesh networking and redundancy to your system. On one Signalinc press and hold the "Set" button on the side until the LED starts blinking fast. Then go to the other Signalinc and do the same thing by holding the "Set" button until the LED starts blinking fast. If the second Signalinc is only blinking slowly then you don't have a good connection between the two Signalincs and you need to move the second module and try again somewhere else. (note: the objective is to get the two Signalincs on different power legs of your location's electrical system.) Try again in several outlets until you get an outlet where the second Signalinc blinks fast. After you found an outlet, go back to the first Signalinc and press its "Set" button again. Both Signalincs' LEDs should now go to solid on. You now have an Insteon mesh network setup.

## And then there was light

The next thing we will do is setup our desk lamp since it's right there next to us and will give immediate gratification. Using your table, get the Lamplinc module you've assigned to your lamp. In Indigo, click on "Devices" and then click "New...". Fill in a name, "Desk Lamp", and make sure "INSTEON" is selected. Then click on "Define and Sync...". Indigo supports automatic link detection, so you are not required to enter the device's address. This feature is especially useful if you've already installed a device and can't read the address label anymore, such as an in-wall SwitchLinc.

Before you press "Start" on the Indigo pane, you'll want to be nearby an outlet (or have an assistant). Insert the Lamplinc module into a wall outlet, and then press and hold the "Set" button on the module until the LED starts blinking. Now press "Start" on the Indigo panel. After about a minute Indigo will go through all the steps in connecting to and saving the module's information. When this is done, click "Close" and then "OK". Your new device should now show up in the list of Devices in the Indigo Panel.



**Figure 2: Create a new device in Indigo and sync it to your Lamplinc control module**

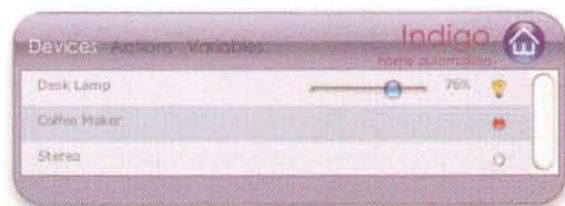
After you've successfully done the steps above, plug your desk lamp into the bottom of the Insteon module, and turn your lamp switch on. You can then select the "Desk Lamp" line in Indigo and click "Turn Off" and "Turn On" to control the light. Congratulations – you're now controlling the world through your Mac!

You should go through and do the same thing for your coffee maker, stereo, and other devices.

## IndigoWidget

Indigo comes with a Dashboard widget for controlling your devices both locally, from the controlling Mac, or remotely from any Mac on the network. (Disclaimer: the author developed IndigoWidget, which is released under an open-source license.) Install the widget by double-clicking on the IndigoWidget icon in the original Indigo disk image. Once it is added to your dashboard it should automatically get all devices from the computer if you are running on the original Mac.

In order for you to run the widget to control Indigo from another computer, flip the widget over (by clicking the "i" icon that appears when you hover your mouse over the widget) and set the hostname, username, and password for the Indigo server machine. You will need to make sure that the Indigo server Mac has "Remote Apple Events" turned on in the "Sharing" preference pane. Once you set these values and check "Remote Server", click "Done" on the widget and after a couple of seconds, the devices from Indigo should show up. You can now click the device name or icon to turn it on and off, or slide lamp brightness values.



**Figure 3: IndigoWidget provides quick access to your devices from any computer on the network**



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## IndigoWeb

IndigoWidget makes controlling your automation devices easy from any Mac on the network. However, sometimes offices or homes are “mixed” environments, and may not all be Apple machines with Dashboard for running widgets. In addition, the IndigoWidget only provides a very simple, list interface to devices, actions, and triggers.

Indigo comes with a built-in web server for providing a browser interface to your automation system. Since IndigoWeb works through a web browser, it is accessible from any computer, operating system, or device that has a browser.

By default, you can open Safari, or other browser such as Firefox, to the Indigo Server Mac’s hostname and append :8000, which points the web browser to port 8000 on the computer. You will see a page with several options:

**Control Pages** – user designed pages, such as floor plans or device layouts. These pages are built in the Indigo user interface and can be completely modified.

**Basic Pages** – simple table listings, like IndigoWidget, of devices and action groups.

**Mini Pages** – simple view of devices meant for viewing on handheld devices or mobile phones.

**RSS/Atom Feed** – subscribe to the automation system in your favorite RSS reader to get updates on devices, variables, and anything else in Indigo.

## Customization through Control Pages

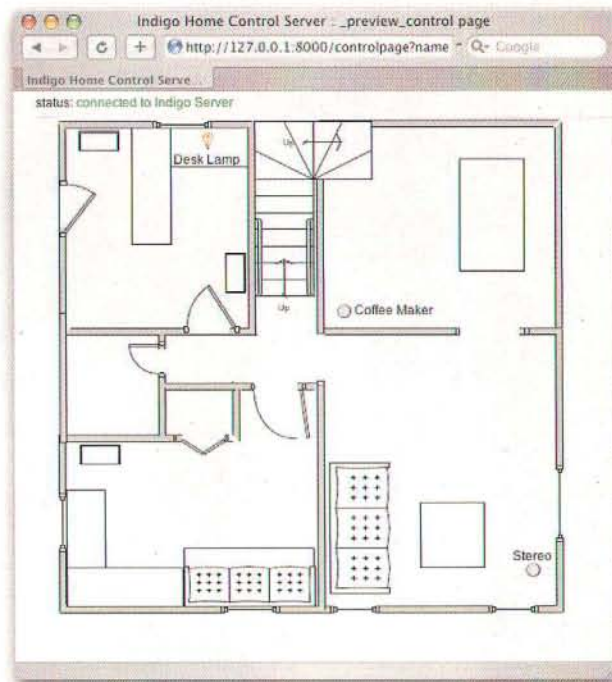
The really neat, and unique offering by Indigo are the control pages. Remember how I recommended at the beginning that you should create a floor plan of your office? If you sketched your floor plan, scan the image into your Mac and save it as a PNG image file. Otherwise, if you used a drawing program save the image as a PNG and save it to your desktop. Open Indigo, select “Control Pages” in the sidebar and then click “New...”. This is your canvas for layout out a control page. You should set the name of the Control Page, “Floorplan” for example, and then click “Show Folder” to add your floor plan image from the desktop to the Indigo backgrounds folder, and finally click “Refresh” to see it in the drop-down list.

Select your floor plan in the drop-down. You should see the canvas area now show your floor plan. Click “New...” in the top of the Control Page editor. The bottom part of the editor now shows all the settings you can change for adding devices, variable displays, and so on. We’ll put in our desk lamp. Change “Display” to “Device State”, and then “For:” to “Desk Lamp”. By default, we’ll see a light bulb icon. There are a lot available icons in the “As image:” box, and you are free to add your own. Now that you’ve added the device, move it to the actual location on your Control Page, change the text to be to either side or above/below. You can even use the keyboard to “nudge” the device around to just the right location.

Add device icons for your other devices. You can also perform a lot of other actions, such as set the “Click Action” in the bottom of the editor. For example, you can open up another control page (like a control page for stereo/media center

controls), send an email, run an Applescript, open an external URL (news page) and so on.

Control Pages are infinitely configurable. See the Perceptive Automation support forums for more examples and discussion of control page layouts, icons, tools, and ideas.



**Figure 4: Indigo Control Pages provide a completely customizable automation system interface**

Once you’re done configuring your page, you can click “Browser Preview” to see what your page looks like in the web browser. Go ahead and click on some devices, such as your “Stereo” to turn it on and off. Lamps can be controlled by a Popup UI that provides a slider and buttons for changing the brightness of the lamp.

If you’re happy with the layout, then click “Update” in Indigo to save the page and go back to the control pages list.

## Better Automation Through Scripting

So far we’ve just setup our automation system to turn on and off several devices in our office. While this is neat, and potentially useful, we haven’t really started flexing the power of an automation system. Now we’ll begin take advantage of the power of our Mac to control the office without our intervention.

### Action Groups and Time/Date Actions

Each morning we come into our office, and the first thing we do is go around and turn on a bunch of devices. This can be simplified by “grouping” the devices together, much like



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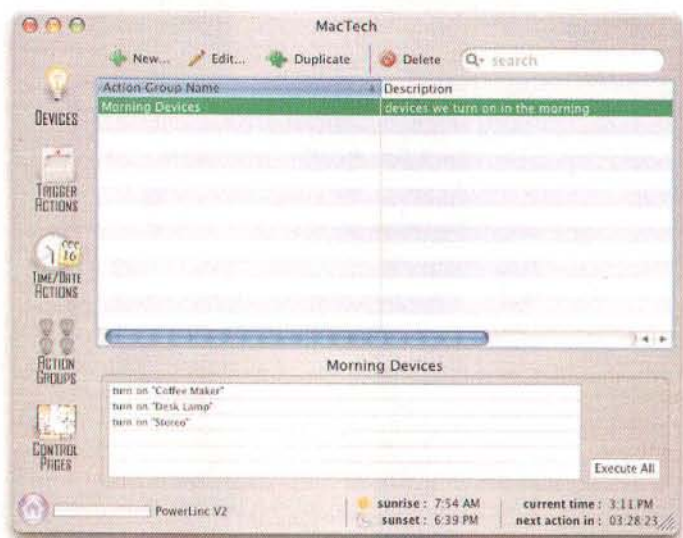
1-800-756-9888



grouping together a bunch of lines in a drawing program to move them together.

In Indigo, go to the "Action Groups" pane, and click "New...". Name the group to "Morning Devices". Then under "Type" choose "Send Device Action", and then select "Device:" Coffee Maker. For added safety, click "Auto-off after 30 minutes" (or whatever time is appropriate) so that we don't accidentally leave the coffee pot on all day and are left with burnt coffee and a potential fire hazard.

Now click "Add New" to add another action to this group (or "OK" if you are done). Add an action for turning on the Stereo (for morning tunes and news) and our Desk Lamp (later we'll learn how to turn on the desk lamp only if it's dark outside). You should now have a finished action group as shown in Figure 5. You can test this group by clicking "Execute All", which should turn on all of our lamps, stereo, and coffee maker.



**Figure 5: An action group for "Morning Devices" means we don't have to run around flipping switches before we've had our coffee**

Great, now we don't have to run around flipping switches every morning. However, why should we even have to manually execute this group each morning? We can setup our Mac to go ahead and turn on all of our morning devices automatically!

Back in Indigo, click on "Time/Date Actions" in the sidebar and click "New...". Put in a name, like "Morning Arrival" and set the time your employees start rolling in (or should be coming in), like 7:00 AM. You'll probably also want to set the "Days of the Week" to be the weekdays (or whatever days you work). Then select the "Actions" tab and select "Execute Action Group" in the "Type" drop-down. Then select our "Morning Devices" group.

Optionally, you could also add a "Condition" to only turn on these devices if a variable, such as "Motion in the

Office" is true, which would be made possible by motion sensors, or a door sensor that it was opened that day. This is a more advanced discussion for later.

Now that you're done setting up the Action, click "OK". We've setup the action so that every weekday morning, at 7AM, our lights and coffee maker will all turn on and welcome everyone to the office.

## Wrap Up

We now have a pretty good start on a smart automation system. We can control some lights and appliances from any computer in the office through IndigoWidget or the web browser interface. In addition, each morning our office is brought online and coffee ready and waiting for us. It should be apparent how easy it is to add more actions and triggers for turning off everything in the afternoon, automating more devices, and setting up more complex conditions and scripts.

In future articles we'll discuss some of these options, such as how to detect when someone is actually in the office, put sensors on our windows and doors, send email or iChat notifications, and even control what music our stereo is playing.

For more information and ideas, check out the Perceptive Automation forums, or the author's own AutomationWiki (see Resources) where automation users can share scripts, control pages, ideas, and feature suggestions.

## Resources

AutomationWiki:  
<http://automation.highearthorbit.com/wiki>

## Vendors

SmartHome: <http://www.smarthome.com>  
FunForGeeks: <http://funforgeeks.com>

## Software

Indigo: <http://www.perceptiveautomation.com>  
IndigoWidget:  
<http://highearthorbit.com/software/indigowidget>

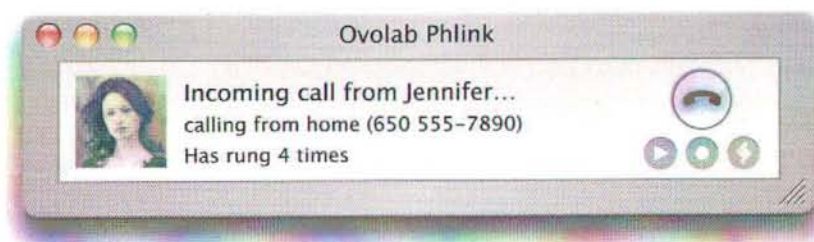


## About The Author

*Andrew Turner is an independent software developer and technology integrator who has built robotic airships, automated his house, designed spacecraft, and in general looks for any excuse to hack together cool technology. You can read more about his projects at [www.highearthorbit.com](http://www.highearthorbit.com).*



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# MAC IN THE SHELL

by Edward Marczak

## More on Logs

*Watching log files without really watching them.*

### Introduction

Last month's column dealt with reading and interpreting log files in a very generic sense. I typically go on at length about using logs to help troubleshoot and simply understand your system. Of course, each system you maintain will have logs to watch – multiple logs, in fact. So how could you possibly keep track of the activity in all of them at once? Well, we're talking about computers, right? This month, I'll be describing *swatch*, my favorite utility for letting me take my eyes off of scrolling text displays for a while, and know that I'll get alerted if there are any problems.

### Do you have the time?

Of course, the other thing I tend to talk up a lot is automation. Turns out that computers can be pretty good at monitoring themselves – with the right software, of course. Enter *swatch*. *Swatch* began life as the “simple watcher” of logs. It's evolved past that quite a bit, but has retained the name. The current version is v3.2.1 and is written in perl.

Setup is incredibly straightforward for anyone comfortable on the command-line (which longtime readers now should be!), but does require some perl modules that are not included with the stock OS X install. To that end, we've created a package that installs *swatch* and all of its dependencies. You can download from <ftp://ftp.mactech.com/src/>. Double-click the .pkg file and let the installer do its thing. For those that want to handle this themselves, follow along. If you don't care about manual set up, feel free to skip ahead to “Running With the Files.”

### Installing Swatch

As always, bring up your favorite terminal app, and let's get started. *Swatch* has a repository on Sourceforge, and you can go hunt it down there. However, we already have a shell open, why not use it!? Create a download directory and change into it. Then, download *swatch* using curl:

```
curl -O
http://easynews.dl.sourceforge.net/sourceforge/swatch/swatch-
3.2.1.tar.gz
```

Untar it (`tar xzvf swatch-3.2.1.tar.gz`) and then change into the newly created *swatch* directory. Before we can successfully install *swatch*, however, we need to add some perl modules to our system. The easiest way is to utilize *cpan* – the Comprehensive Perl Archive Network. If you've never run *cpan* before, you'll need to go through a brief set up. sudo up to a root shell (`sudo -s`), as we're also going to install these modules now, and type *cpan*. You'll be asked if you're ready to perform manual setup. Take the default “yes!” and off we go. Interestingly, you can literally take the defaults for the bulk of the questions – a testament to authors. You *should*, of course, read a little deeper. However, if you're not paying attention, you'll need to finally really answer a question when you're asked for mirror sites. Choose sites that are close to you, or that you know have a good chunk of bandwidth. Also, I like changing the default answer on “Policy on building prerequisites (follow, ask, or ignore).” The default is ask, however, if you want the module, you're going to want the dependency. So, after years of manually allowing the dependency each time, now, I set *cpan* up to “follow”, which will automatically download and build the dependency. Let *cpan* go through its routine, and you'll finally be (unceremoniously) dumped at a “*cpan>*” prompt.

How do we know which modules to install? In addition to some information in the *INSTALL* file that comes with *swatch*, you'll get this if you try to make *swatch* with these modules:

```
Warning: prerequisite Date::Calc 0 not found.
Warning: prerequisite Date::Format 0 not found.
Warning: prerequisite Date::Manip 0 not found.
Warning: prerequisite File::Tail 0 not found.
```

So, from here, we need to install each one. Type:

```
install Date::Calc
```

at the “*cpan>*” prompt to install the first one. *cpan* will find and download the module, then compile and install it. It will find a dependency and either ask you, or if you told it to follow, just go download it itself. You *will* be asked if you want to add Object::Deadly to the tests. Just press return for the default of “no”. Back to a *cpan* prompt with no errors? Great – let's repeat the process for the remaining three modules:

```
install Date::Format
install Date::Manip
install File::Tail
```

Once you're finally back at a *cpan* prompt after all of this, simply type “exit”, “quit”, or, if you're really hip, “q”, to return to your shell prompt. You should still be in the *swatch* directory, and we can simply install *swatch* from here:

```
perl Makefile.pl
make
make install
```



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— Mike Kneebone, North Central High School, Indianapolis



There should be no errors reported, and you'll now have a working swatch in `/usr/bin`.

## Running With the Files

Now that swatch is installed, you may be anxious to get going. If you simply type `swatch`, you'll be disappointed. You'll get a message that you need a config file to do anything useful. Well, that's where we'll head next. Long time readers will remember my many pleas for you to learn regular expressions. Swatch configuration will vindicate me once again!

Swatch uses a simple configuration file that, at its most basic, contains patterns to look for, and actions to take if said pattern is seen. When you hear "pattern," you should immediately think of regular expressions and ruling the universe. Additionally, swatch lets you configure throttles so you don't act on log lines that are quickly, and repeatedly sent to the log file.

More specifically, a trigger definition in swatch consists of three parts:

A trigger pattern, once matched causes the action to run.

Action(s), or, what to do when the pattern is matched.

A length of time to suppress duplicate log entries (optional).

So, let's set up a fictional entry, and then we'll force 'errors' into the log. First thing to do is to create our `swatchrc` file. I can expound on different methodologies regarding where this file should live, but we'll keep it easy for now and use the default: `~/swatchrc`. So, create a file in your home directory (and, if you're still following along, you're sudoed up to root, but thanks to `sudo`, this will create it in the home directory of account you sudoed from) called `.swatchrc` (note the leading dot). Give it these contents:

```
watchfor /anecho/
echo
throttle 0:15:00
```

```
watchfor /thebell/
bell 3
```

Save it, and run swatch thusly:

```
swatch -t /var/log/system.log
```

and you should be greeted with an "I'm running" message like this:

```
*** swatch version 3.2.1 (pid:3251) started at Mon Jan 15
14:29:33 EST 2007
```

We didn't tell swatch to go into the background, so, it'll monopolize our terminal while it runs. For the sake of this example, that's good. Grab a *second* terminal (Apple-N or File->New Shell), and let's put this example through its paces. We'll use the `logger` command to inject new lines into the log. In the new, non-swatch-running terminal, type:

```
logger anecho
```

...and you should see the swatch window have a reaction: it echoes the log file line to the display. Type:

```
logger thebell
```

...and you should hear your system beep three times. Now, once again, type `logger anecho`. You won't get a second line on the swatch console. But another "logger thebell" will make swatch beep (again and again). What's going on here?

First, the command line switch "`-t`" tells swatch which file to monitor, or *tail*. On the first line of the definition, we tell swatch the pattern (regex) to watch for in the log file. This can be any perl regex you like. The line(s) following consist of the action(s) to take when the pattern is found. There are several, and I'll hit the ones that I find most useful. Finally, you can set a *throttle*, so that multiple, repeated lines in the log file don't cause you to trigger an action too many times. In our first definition, we used a throttle, that said, "don't repeat these actions inside of 15 minutes." So, if there's a matching entry in your log that is repeating every minute, you'll only see an action 4 times an hour. We didn't give the second entry a throttle, so it'll repeat its action as many times as it's triggered.

## Pattern, Trigger...Action!

So, about now, all sorts of ideas should be running through your brain regarding how this could be useful. Let's look at some of the more useful actions that swatch will perform based on a pattern being triggered. You've already seen two: `echo` and `bell`. These are of incredible use if you want to set up a dedicated swatch console on some machine. Otherwise, you'll want some other way of being notified. For the sake of completeness, let's look at those options first.

An action of `echo` will simply echo the matching log file line to the console. As OS X users, however, that may not be very useful if swatch is running daemonized in the background and we don't even have a console open! Similarly, `bell` will ring the console bell the number of times specified.

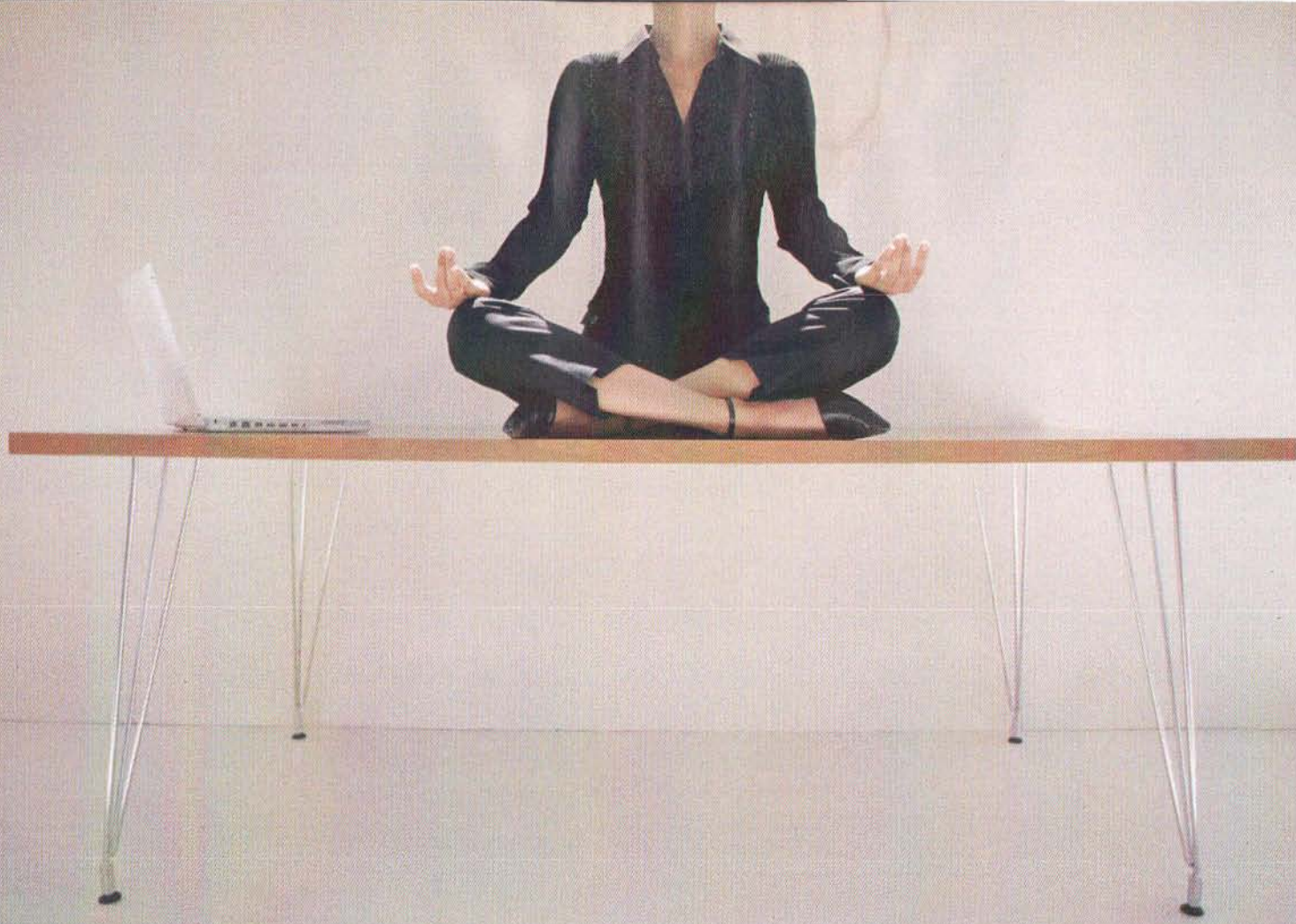
A 'simple' action is `mail`. This action sends the matching log file to the address you specify. Check it out:

```
mail addresses=marczak@radiotope.com,subject=Some\ Bad\
Error
```

Notice the need to escape the usual suspects. This action, when triggered, will send a fairly uninspired mail message with the specified subject to the specified address. However, depending on the systems and workflow you have in place, this may be all you need (e.g. - Help desk systems that require input via mail to create a trouble ticket, etc.) The trigger that uses a mail action is clearly one that you also want to throttle!

`pipe` is another way to feed the log line to an external program. As you may expect, swatch will pipe a matched line





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into the command you feed it. This is similar, but not the same as using **exec** – my favorite.

**exec** will run an external program, and pass it any part of the matched log line, or the entire matched line. Now all of those ideas running around your brain can be made reality. Between **pipe** and **exec**, you can pretty much do anything. **exec** can also pass along variables to the program it is calling. Passing **\$\*** will pass the entire log line. **\$N** will pass the “Nth” field of the log line. Here’s a good example **swatchrc** using these statements:

```
watchfor /error/i
exec /Users/Shared/fs.sh err $*
exec echo $* | cat >> /Users/Shared/err.txt
continue
throttle 0:60:0
```

```
watchfor /warning/i
exec /usr/local/bin/flagdb.sh $*
continue
throttle 12:0:0
```

Some new elements here. Notice that we’re using the “i” flag on the **watchfor** regex. This makes the match case insensitive. This will match “ERROR”, “error”, “Error”, or any combination of upper and lower case. When we find “error”, we run two actions – nothing wrong with that. Also, note the use of “**continue**” – without it, a matched pattern triggers the actions in its block and then stops. “**continue**” tells **swatch** to keep looking for pattern matches in the current line. The final ‘new’ thing here is that the second block uses a twelve-hour throttle. Again, nothing wrong with setting a wide time to suppress duplicate actions, however, make sure what you’re setting is appropriate. If you’re running a script that takes corrective action based on the pattern it finds, lower might be better. You could always create two matches on the same pattern with different throttle values; one could open up wide for notifications, and the other could be lower and take action.

Think about **exec** for a minute and the options available to you. Shell scripts, AppleScript code, perl or php that interacts with a database...anything, really. If you really want to impress your date, tie **swatch** in with **Growl** using **growlnotify**, and set **Growl** to forward (sticky) notifications to machines on the LAN...that’s a hot combination!

## It’s what you *don’t* know

A quick note on an interesting **swatch** directive: **ignore**. Often, you know what errors in your logs look like. Sure, you want to be notified about them. But, what about log entries you’ve never seen before? **Swatch** requires that you already be somewhat familiar with the contents of the log you’re monitoring. Since **swatch** is supposed to get us away from staring at a log all day, what can be done? Figure out what you know, and ignore it.

The **ignore** statement is the exact opposite of **watchfor**. If there’s a log file that you’re pretty comfortable with, and just want to look for anomalies, use **swatch** to ignore all of the items that you already know, and alert you when something new to you crops up. There are no actions for **ignore**, however, **swatch** stops processing

the log line when it sees a matching **ignore**, so, put these at the beginning of your **swatchrc** file.

## The Big Picture

The best thing about **swatch** may be its ability to monitor your entire organization. How? Remember, we’re just feeding and watching **syslog**. A few months ago, MacTech published an article showing how you can have all of your machines log to a central Tiger server (which is now on-line at <http://www.mactech.com/articles/mactech/Vol.21/21.09/TipsNTidbits/>). If this were any other Unix variant, I’d also have to tell you to create a new log that captures all entries. However, readers from last month will remember – we’re special. We use OS X. We have the Apple System Log.

Use the “Centralized Device Logging” article (linked above) to allow **syslogd** to accept remote log entries. From there, you can set any **syslog** enabled device to send their log entries to it. This includes Mac clients, other servers (including Windows servers, using third-party software), hardware appliances such as firewalls, and more. Now, you can be alerted to warnings and errors (or whatever you please, really) from any device on your network, and potentially act on it. *That’s* power!

## Start ‘Em Up

Naturally, we don’t want to have start a program like **swatch** manually, or have to tie up a console or **ssh** session to have it run. Again, OS X users are special, and we can create a **launchd** item to have **swatch** run at every boot. This is where, though, we get back to style. For a daemon that will run at boot and be able to manage the machine, rather than a single user, the configuration file belongs in a more universal location, like “/etc”.

Using your text editor of choice, or **Lingon**, create the following file:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE plist PUBLIC "-//Apple Computer//DTD PLIST 1.0//EN"
"http://www.apple.com/DTDs/PropertyList-1.0.dtd">
<plist version="1.0">
<dict>
  <key>Disabled</key>
  <false/>
  <key>Label</key>
  <string>com.radiotope.swatch</string>
  <key>OnDemand</key>
  <false/>
  <key>ProgramArguments</key>
  <array>
    <string>/usr/bin/swatch</string>
    <string>-c</string>
    <string>/etc/swatchrc</string>
    <string>-t</string>
    <string>/var/log/asl.log</string>
  </array>
  <key>RunAtLoad</key>
  <true/>
</dict>
</plist>
```

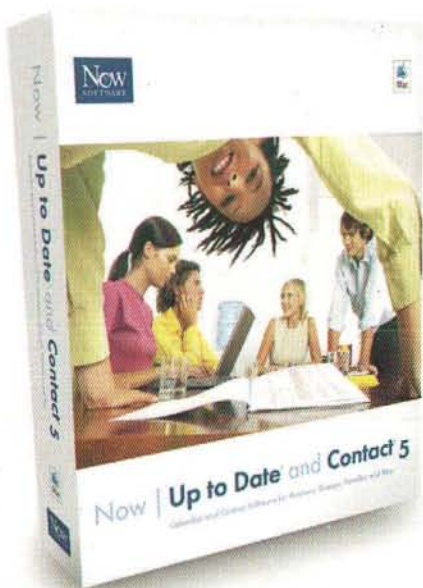


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Save it as /Library/LaunchDaemons/net.sourceforge.swatch.plist. Note that, as mentioned, this launchd plist will run swatch and have it look for a config file in /etc named "swatchrc", and it will monitor the Apple System Log at /var/log/asl.log.

## Conclusion

Watching logs is an incredibly important activity for the health and security of your network and networked machines. However, as humans, there's only so long we can keep our eyes on scrolling text. Plus, since logs typically contain both warnings, errors and notices ("good" information), it can quickly lead to information overload. Using a tool like swatch allows us to be alerted to the things that we deem important.

As noted last month, just about every subsystem logs. However, not every system logs using the system log, and may just drop a file somewhere else in the system (like Samba and Apache). Feel free to run a second instance of swatch with a custom swatchrc to monitor a second log file. Also, check the swatch man page once you have it installed. You can run swatch in batch mode – not even tailing a file in 'real-time,' change the line separator, create a stand-alone script, have swatch restart automatically (to pickup rolled log files), use an alternate tail application (which can resolve the former issue) and even create custom actions.

I was really thrilled to meet many readers at MacWorld this year. It really was a great week – I learned a lot, and really had my confidence in the Mac platform boosted even higher. Nowadays, there's just no reason not to buy a Mac (on the client side...servers are subject to more variables). Now, we have other Mac-related events to attend during the year (WWDC, Mac Networkers Retreat, SoCal Mac Fair and more).

Media of the month: Battlestar Galactica Season 1 DVD set. SciFi enough to satisfy the geek in you, and well written enough to keep you significant other watching, too. If you haven't been watching, check out the mini-series and season 1.

So, stop watching you logs...but make sure you're monitoring them! See you next month!

MM

## About The Author



Ed Marczak owns and operates Radiotope, a technology consultancy that brings enterprise solutions to small and medium-sized businesses. Outside of this piece of the puzzle, he is Executive Editor of MacTech Magazine, a husband and father, and CTO of WheresSpot, among other things. Find the missing tech piece at <http://www.radiotope.com>.

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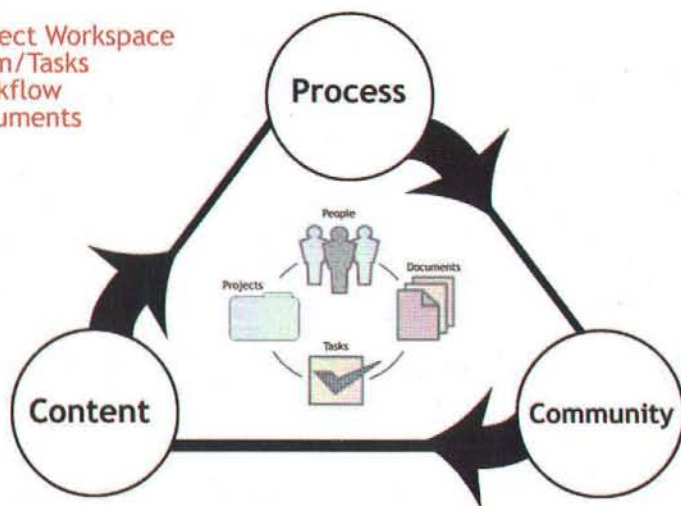
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# Matching satellites Altec Lansing FX 6021 with Apple Cinema Display 23"

By Bernard Escaich

## My need

I wanted a 2.1 Speaker System for my computer, a Power Mac G5 with a 23" HD Cinema Display, to replace the poor internal speaker. This article will show you how I mounted third-party speakers on a Cinema Display while keeping the result looking genuinely Apple. Best of all, it takes inexpensive parts and some of your time.

## Before you Begin

If you're interested in performing this modification yourself, you'll need:

- Polycarbonate plate (70 x 22 cm x 4 mm) ; cut a 63 x 22cm plate and two 2 x 22 cm plates
- Two light alloy braces 20x10 mm length 53 cm
- Screws and nuts (3 mm diameter for braces).

All material can easily be found on-line, or at local hardware stores.

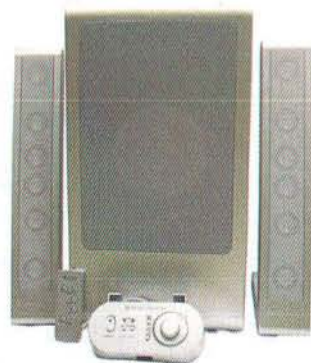


Figure 1

## The Solution

I bought a pair of Altec Lansing FX 6021 speakers for their aesthetics – the brushed metal finish matched my Apple 23" monitor. I quickly realized that, on my small desk, they turned out to be a bit cumbersome. Furthermore, when you turn the screen, the speakers wouldn't follow.

A quick measurement shows that the height of satellites is practically identical to that of the screen: the solution is clear: hang the on satellites on each side of the screen, but how?

The Apple display is fixed to its foot by a very discreet pivot, and there doesn't seem to be anywhere to mount speakers. Furthermore, it is necessary to keep the buttons situated on right side accessible.

It is enough, in fact, to clamp a polycarbonate plate between the screen and the foot, without preventing the rocking movement and without damaging screen! The attempt is satisfactory, but a problem appears: the plate is too flexible and satellites are not solid with display.



Figure 2

You can notice on this picture the two polycarbonate guides between display and satellites to prevent lateral tilting. They are obviously inefficient.



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## SECOND VERSION

The second version is implemented with braces to stiffen the plate and press at the back of the display. (see figure 3)

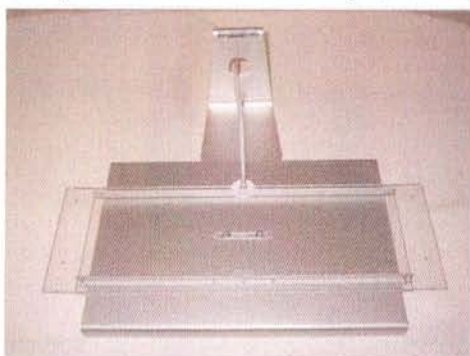


Figure 3

We detail here the shape of the oblong opening with chamfer edges.

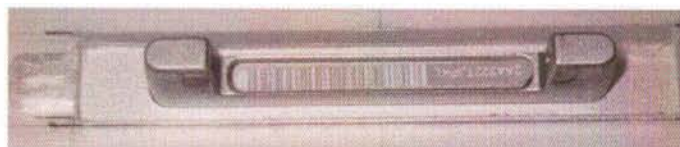


Figure 4

You can notice protective film and adhesive tape to outline the opening.

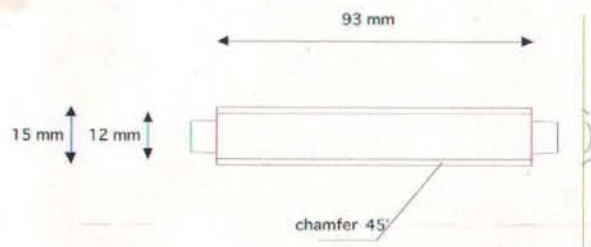


Figure 5

Plate thickness: 4 mm  
Approximate dimensions.

And the fixation on the stand.



Figure 6

## THE RESULT

And here is the finished assembly.

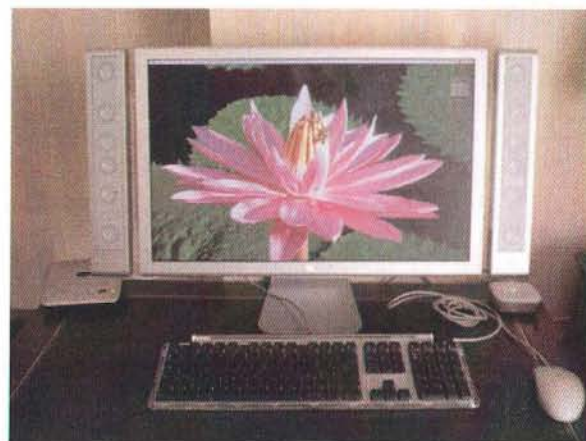


Figure 7

Nice, isn't it?

Well, it remains to replace keyboard and mouse by wireless devices..

MI

**About The Author**

*Bernard Escaich is an Apple and 4D maniac for 22 years !*



# KNOW WHO'S WATCHING YOU.



## INTERNET CLEANUP 4

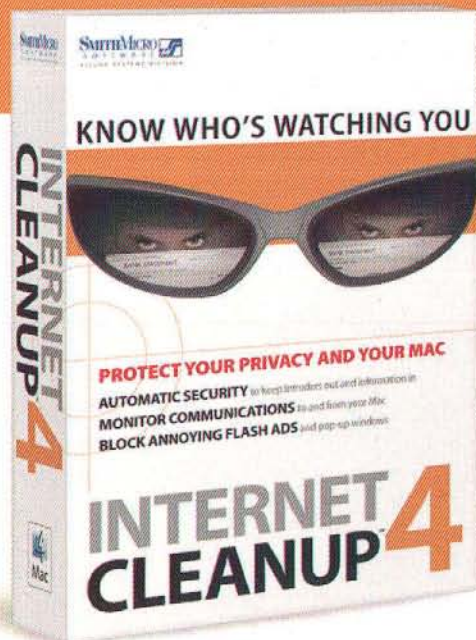
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# Camping in OS X

## A file sharing primer

By Philip Rinehart

### Boot Camp

By now, one would have to have been living on another planet to have not heard of Boot Camp. Quite simply, Boot Camp 'Apple'-fies the process of dual booting an Intel based Macintosh. However, the single largest question that most Boot Camp users encounter is how to work on files in one operating system environment, and then access them in the other operating system environment. A common example: a user works on a file in the Windows XP environment. They then boot or use OS X to mail the file they were working on in the Windows XP environment and need access to that file. This is where many users begin to have questions on how file sharing is most easily accomplished between operating systems. While file sharing is most noticeable in Boot Camp, questions still exist on how to share files in virtualization programs (Parallels, VMWare), or CrossOver. It makes the most sense to begin with Boot Camp, as it is the most complex when sharing files.

### Making a choice

Before we begin a discussion of how to share files, a little legwork is in order. Most Mac users are familiar with the file system used in OS X called HFS+. When installing Windows XP, the first decision that may be required is the choice of file system type, FAT32 or NTFS. Huh? Never heard of either? Let's quickly take a look at what each is, and what some of the positive and negative aspects of each are.

#### FAT32

FAT32 is an evolutionary file system, originally introduced with the release of Windows 98, Second Edition. Originally, the **F**ile **A**llocation **T**able file system was created to work with 500K floppy disks. Microsoft continued to update the structure to handle larger disk sizes, eventually allowing the file system to access up to 2 TB of space.

There are four main reasons that Windows system administrators might consider FAT32 a less than ideal choice.

1.FAT32 file systems fragment more easily. Initially, fragmentation may be of little consideration, but over time the drive may encounter reduced performance.

2.FAT32 file systems have low fault tolerance. In practical terms, this lack of tolerance can lead to loss of data, and potentially catastrophic loss of data.

I'll share a little story to illustrate the point. Recently, a support incident was forwarded to my desk. The individual was at a conference, and had shut his computer down between sessions while booted in Windows XP using a FAT32 partition. Upon reopening his laptop, a blue screen of death appeared. After a quick reboot, the entire partition that had XP installed on it was corrupt, and the user had lost all data for his presentation. Ouch!

Is this the norm? Probably not, but it does point out one of the dangers of using a FAT32 file system.

3.Storage efficiency. FAT32 was designed primarily to work with small partition sizes. While it will work for larger partitions, it is best used for partitions of less than 20G.

4.Security. FAT32 has no support for security mechanisms, and files stored on such a volume will be 'world readable'.

So what are some of the advantages? The *primary* advantage of the FAT32 file system is its compatibility (read/write) with a wide variety of operating systems. The second advantage is the ability to be at least *read* by almost any modern operating system.

#### NTFS

The **N**ew **T**echnology **F**ile **S**ystem was developed as an improvement over the FAT file system. One of the primary reasons for developing the new file system was to allow the





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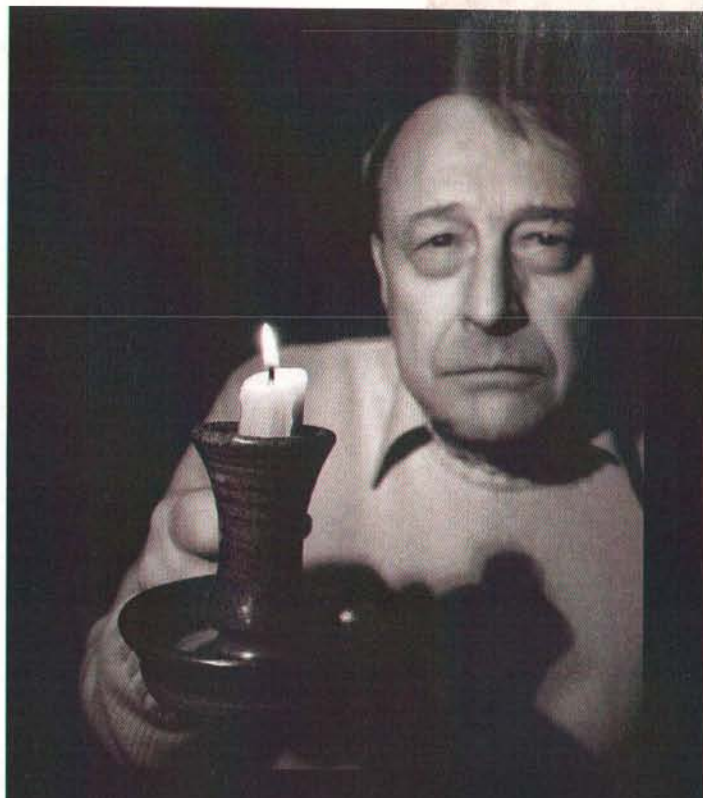
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storage of metadata. What type of metadata? Access controls, file names, creation dates, contents are just some examples of metadata recorded by NTFS. Also, the low level plumbing in NTFS allows partition sizes of virtually any size, though the practical limit is 16TB; quite an improvement over FAT32.

So, what are some of the disadvantages of NTFS? From a strictly Windows platform perspective, the disadvantages include:

1. It is not as space efficient on small file partitions, less than 4G. Practically, this limitation may not be much of a consideration, as any partition of 4G for Windows XP limits the flexibility needed to run the operating system and any applications that are installed.
2. Older operating systems do not understand NTFS. If you are installing Windows 9X on your partition, NTFS will not be an option at all.

The advantages of NTFS over FAT32 are where it really shines.

1. It supports the Unicode character set. FAT32 does not support the Unicode character set at all; it only supports ASCII.
2. It is far more fault tolerant, as it is a journaled file system.
3. Security! NTFS supports both file encryption, as well as access controls.
4. Compression. When space is running low, an NTFS file system can be compressed to regain space. FAT32 file systems cannot.

OK – The brief tour of file systems is over!

## The heart of it

Confused yet? Understanding the choices at installation time can potentially be difficult for a user who has never used Windows before. Why do some choose to use the FAT32 file system?

The **primary** reason that FAT32 is used when installing Boot Camp is the inability of OS X to write files to an NTFS partition [Ed. Note – see this month's "Letter From the Editor"]. Often, Boot Camp users cite the need to write files while booted in OS X to the Windows side of the house. Many users consider not being able to write to an NTFS partition a deal breaker. Is there an alternative? Or a solution?

## And the twain shall meet...

By default, when installing Boot Camp, the Assistant creates a single partition. Many enterprising individuals have devised ways around the Assistant's behavior. If more than one



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partition exists, Boot Camp refuses to continue with installation. Never fear, there are ways to get around this limitation. In this article, we are going to use Boot Camp Assistant to create the initial partition. However, once this partition is created, and the machine reboots, we will be altering the standard installation choices. So, if you haven't already, get Boot Camp, start the Assistant, and partition your drive!

The next step is to actually change the way the drive is partitioned by Boot Camp. By default, Boot Camp will create a 200MB partition at the beginning of the disk, as well as the partition needed for installation. To make this solution work, we begin with the deletion of the 200MB partition at the beginning of the disk. At the time of this writing, it appears to have no use. Figure 1 shows a screen that is similar to what should be shown. Select the 200MB partition, and type **D** as shown in Figure 1.

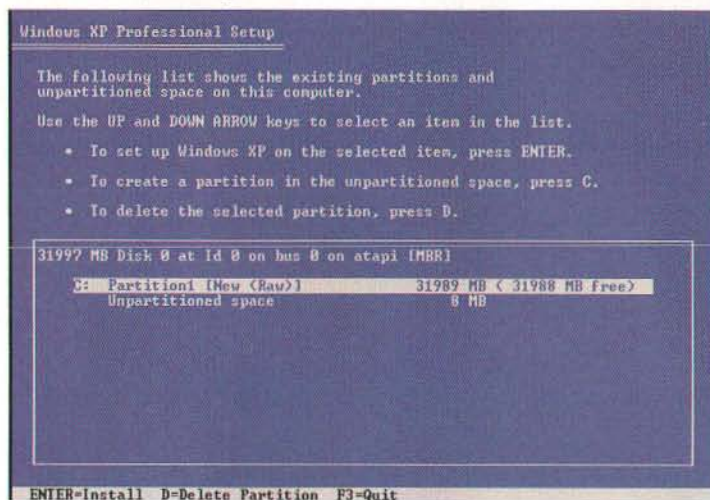


Figure 1

Note, Figure 1 does **not** show the 200MB partition. Figure 2 shows the second screen, asking for confirmation when deleting a partition.

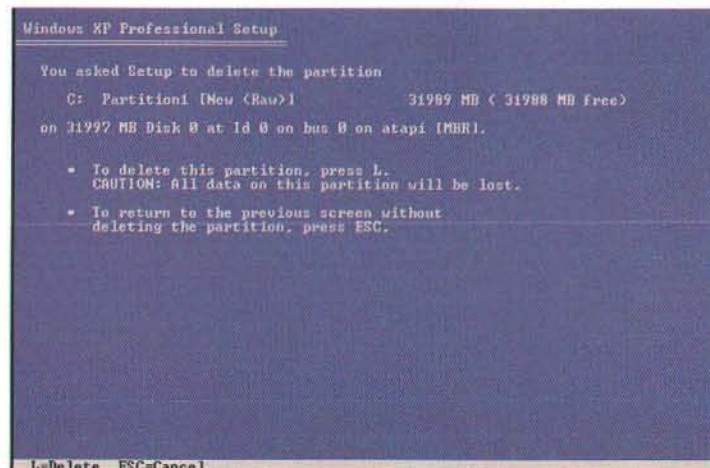


Figure 2

Press **L**, and the partition is deleted. Next, delete the **C:\** partition. This partition was also created by Boot Camp. **Be certain you do not delete your OS X partition.** Typically, it is labeled a letter higher than C. For example, when following this option on my machine, the partition was shown as letter G.

The next few steps are the **most** important. A screen similar to Figure 3 will appear.

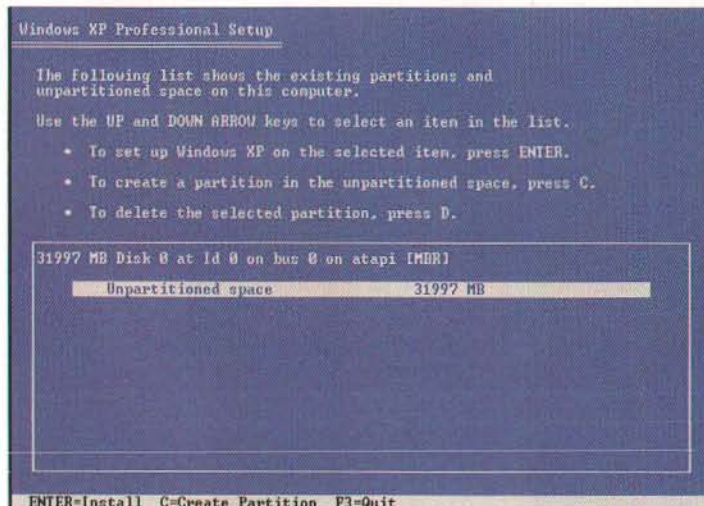


Figure 3

Type **C** to create the first partition. The XP installation disk does not name the partition, but will simply create it. By default, the first partition created is the installation partition! Usually, more space is allocated to the first partition. As an example, if a partition size of approximately 20G is desired, enter 20000M. After creating the first partition, create another partition in the same way that the first partition was created. Both partitions will display as "[New (Raw)]". What does that mean? It indicates that the partition has been created, but no file system structure exists (yet). It should be labeled **C:**. Create the second partition in the same way. It may be labeled **D:**. After both partitions have been created, select the **C:** partition, and hit the **Enter** button. Doing this causes the XP installation disk to kick off installation. The installer then gives four choices for formatting. For this option, select NTFS. We'll get to why a little bit later...

Question though – what are the differences between quick and normal formatting? The Microsoft Knowledge base says it best: "When you choose to run a regular format on a volume, files are removed from the volume that you are formatting and the hard disk is scanned for bad sectors. The scan for bad sectors is responsible for the majority of the time that it takes to format a volume.

If you choose the Quick format option, format removes files from the partition, but does not scan the disk for bad





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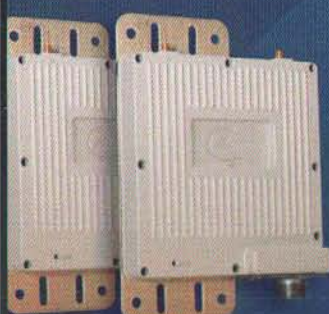
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sectors. Only use this option if your hard disk has been previously formatted and you are sure that your hard disk is not damaged. "

Generally, it is safe to select the quick format unless you have reasons to believe the hard disk is damaged in some way. Once finished, the formatting process starts, followed by the installation of Windows. Now is the time to go and have a cup of coffee, as the installation of Windows can take a few minutes. When prompted to restart windows, simply let it do so. It will continue and finish the installation of Windows.

A by-product of deleting the 200MB partition is the re-appearance of a boot menu. After the installation and setup are finished, the return of the boot delay can be minimized in short order. For this operation, the computer should be booted into Windows XP. After booting into Windows, reconfigure the boot menu, here's how:

1. Select the **Start** menu
2. Select **Run**
3. Type `bootcfg /timeout 1`

Reboot the machine to verify that the configuration has been updated. On reboot, the computer should briefly display the boot menu, and then proceed to boot into Windows XP.

Let's now make our FAT32 sharing partition visible to both operating systems. This action can be accomplished in either operating system, but I find it easier to do in OS X.

First, open Disk Utility to get the device name of the partition that will be erased. In my case, it was shown as `disk0s5`

Next, open a Terminal, and type the following command:

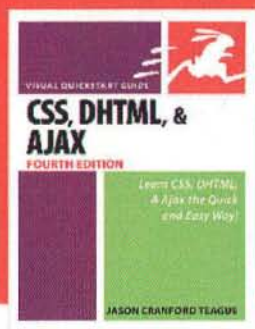
```
diskutil eraseVolume "MS-DOS FAT32" sharingdrive  
/dev/disk0s5
```

This command formats the third partition using FAT32. The computer is now set to share files using this partition. So, why all this trouble? Couldn't the Windows partition simply be formatted using FAT32? Certainly! However, the primary reason we are going to the extra trouble to create the third partition is for the reliability, security, and metadata support of the NTFS file system. A system configured in this way should provide a more enduring and reliable solution over the long term.

An added benefit of using NTFS for installation of the Windows operating system is that the install partition will appear in the OS X file system without allowing a user to accidentally delete or modify essential Windows files.



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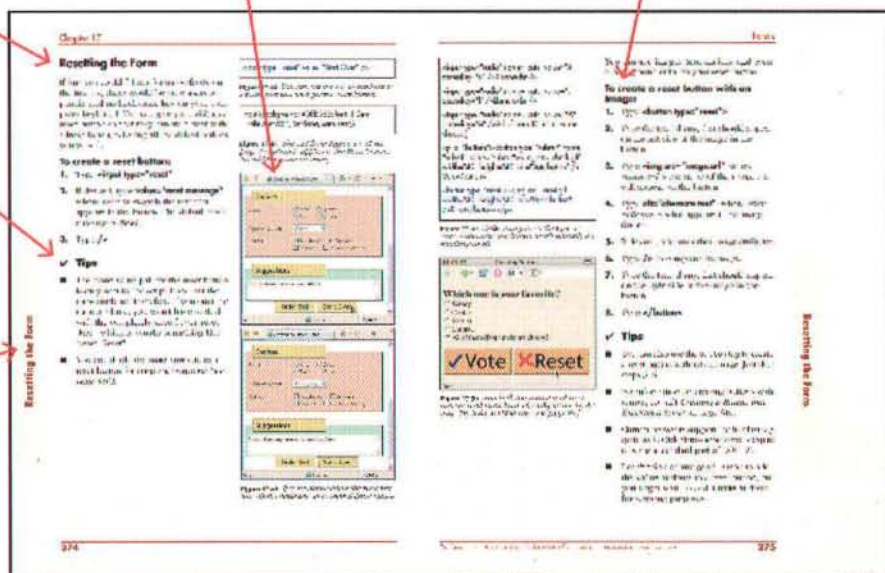
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## Other Options?

Are there other options? One of the most used alternative options is the use of an available file server. It requires no additional configuration, and has the benefit of using the default Boot Camp installation method.

Another option is third party HFS+ drivers written for the Windows environment. Most products allow full read and write access to the OS X partition within Windows. However, this method has the distinct disadvantage of allowing a compromised Windows operating system to affect the OS X file system, deleting, corrupting or overwriting important OS X system files.

The last, and perhaps simplest, option is the use of removable media. As both operating environments can use USB keys, firewire drives, or CDs and DVDs, this way of sharing files is quite often the quickest and least fussy method of sharing files. This method could also be used to share files in any virtual environment, or with CrossOver.

## A Quick Note

Though the focus has been on how to share files from the Windows XP environment to an OS X partition, the above method could potentially be used to share files from any other operating system that understands FAT32, such as any BSD-based operating system, or Linux.

## Virtual sharing

What about virtualization? The options are generally far simpler as Parallels and VMware both provide the option of using *Shared* folders. Quickly, let's take a look at how Parallels' does it.

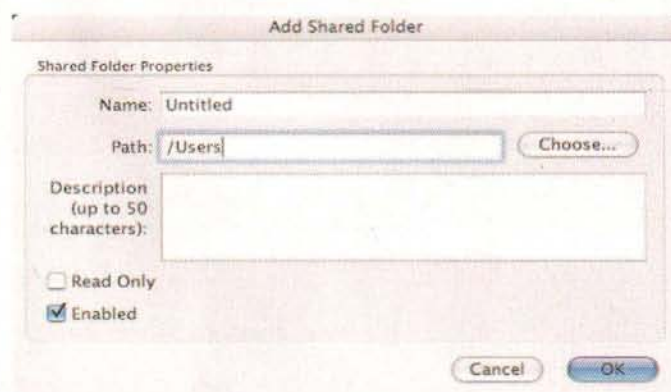
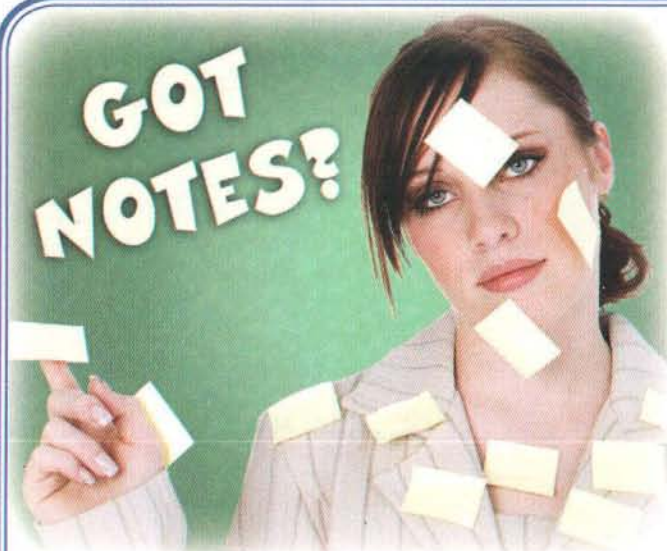


Figure 4

Figure 4 shows Parallels' implementation of shared folders for the XP environment. It is fairly straightforward. Enter the full path of the folder that is shared, or choose the folder with the **Choose** button. Note that you can also choose to make it a Read Only folder, which could be important depending on the contents of the folder.



## Try TopXNotes!

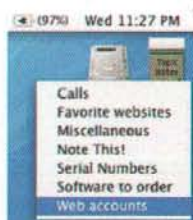
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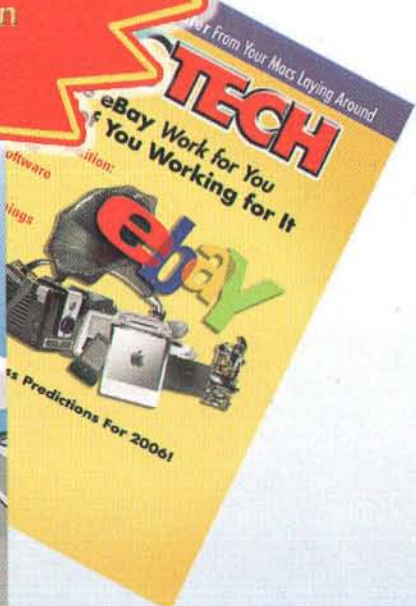
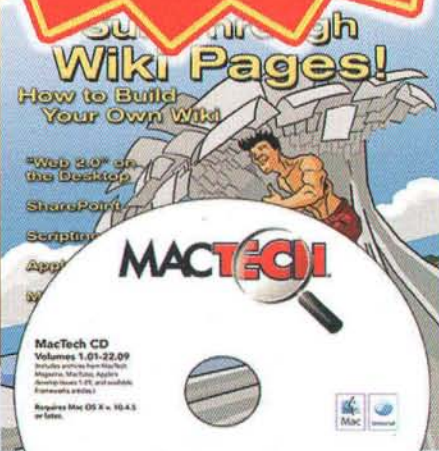
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However, a shared folder is primarily aimed at Windows file sharing, not other operating systems. What can be done? Fortunately, OS X provides an elegant solution right out of the box!

## Like Falling Off a Log

That's how easy it is! Really... Most modern operating systems understand the Samba (SMB) file sharing protocol, which is provided by default on OS X. Simply turn on **Windows File Sharing** in OS X. A quick review of the steps needed to turn on Windows (SMB) sharing:

1. Open System Preferences
2. Select the **Sharing** preference pane.
3. Turn Windows file sharing on by checking the box as shown in Figure 5
4. Click the **Start** button to start file sharing
5. Next, enable the accounts for sharing files. This step is easily omitted, as OS X requires that specific accounts have Windows file sharing enabled.

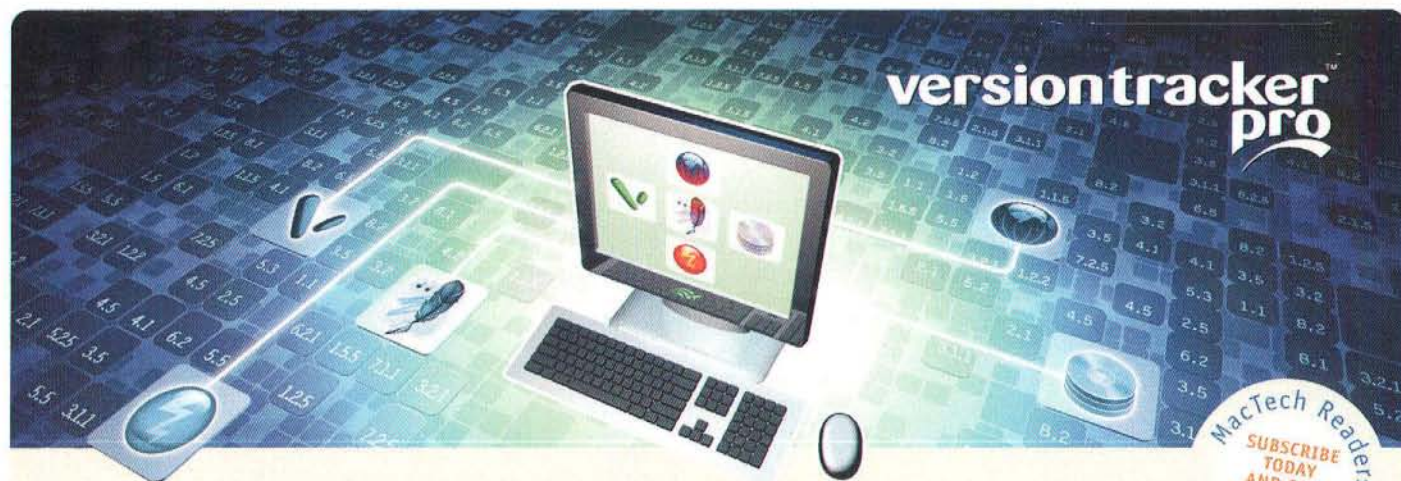
You are done! Windows file sharing is now active. Fire up your virtual environment, and access the file share being



Figure 5

hosted by the OS X file system. As an example, if the OS X machine's primary IP address is 192.168.1.100, and account enabled is user1, it would be easy to access user1's file space by typing in \\192.168.1.100\\user1 in Windows XP. After authenticating, the file share should appear, allowing file sharing between the virtual machine and the OS X machine. Any operating system that understands the SMB protocol should be able to use this file sharing method to allow access. Note that in this example the virtual instance is using **shared** networking. For the most part, shared networking is the most effective networking mode to use when running a virtual instance.

Samba can be configured to share any mount point on the OS X file system either by hand editing the configuration file, or



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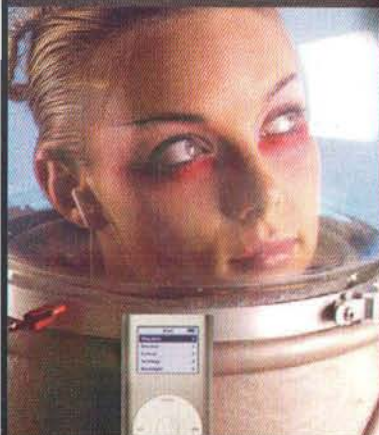
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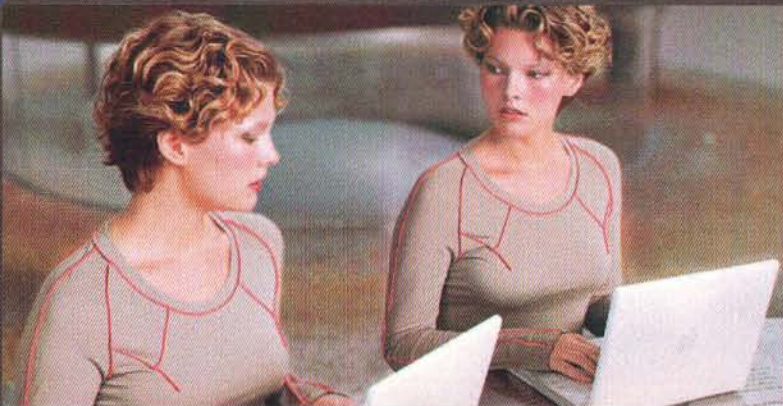


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using various third party applications – the typical choice being  
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## Crossover

Though still in beta, CrossOver provides the simplest  
method of accessing the OS X file system. No configuration is  
required, no special tweaking, no unique setup, it simply works.  
The entire OS X file system is exposed, and can be written and  
read. Figure 6 shows what it looks like.



**Figure 6**

Notice that the entire file system is exposed as drive Z. Any file  
is accessible using the Windows Open dialog box. Pretty cool!

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PowerPC based Macintosh computer. Now that they are, there  
is more demand than ever to share files on the same machine!  
With the new knowledge you now possess, solving any file  
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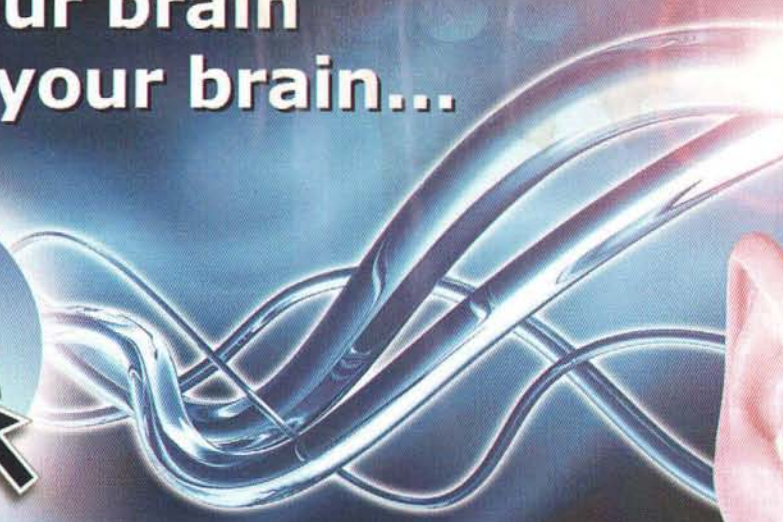


## About The Author

*Philip Rinehart is co-chair of the steering committee leading the Mac OS X Enterprise Project (macenterprise.org) and is the Lead Mac Analyst at Yale University. He has been using Macintosh Computers since the days of the Macintosh SE, and Mac OS X since its Developer Preview Release. Before coming to Yale, he worked as a Unix system administrator for a dot-com company. He can be reached at: philip.rinehart@yale.edu.*



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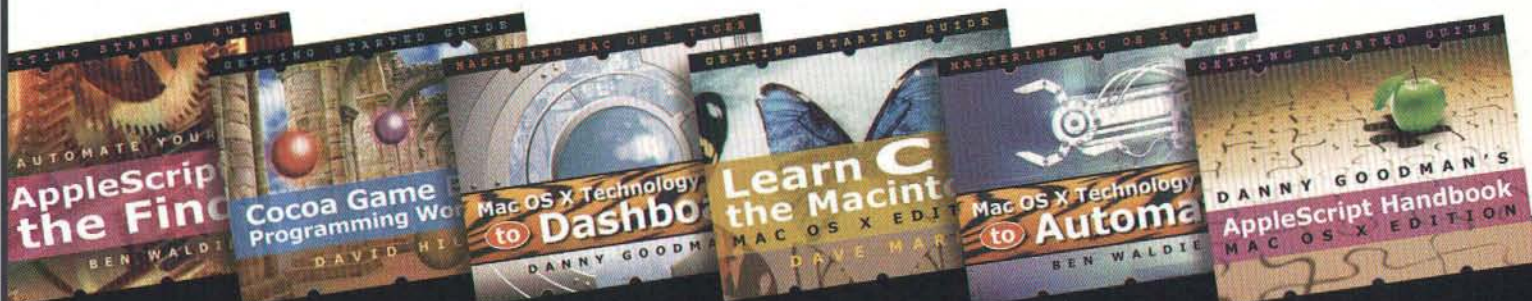


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# REAL WORLD REVIEW

by Neil Ticktin

## BravoPro

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### Disc Publishing Systems

Today, optical media has become so inexpensive that we don't think about it – burning CDs or DVDs are commonplace. But what about creating copies of a software distribution for your company, or creating presentations on DVD or CD with a professional look and feel? Your answer could be to get a disc publishing system.

We put the BravoPro Disc Publisher to real world tests over the past few months, and used it as any user would. Now, if you're familiar with the original Bravo design, then you know what this kind of technology is capable of. BravoPro has more in it than the original Bravo design, and Primera has definitely updated it as well.

Primera touts its original Bravo Disc Publisher as the world's first automated CD/DVD duplication and printing system. What

we can tell you is BravoPro comes with a 50-disc capacity (100-disc in "kiosk mode"), and here's what we love to hear – it is both Mac and PC compatible. It uses a robotic arm to automatically transport discs from bins to drives to the printer and then to the output stack. BravoPro uses a built-in Lexmark printer, and it's definitely fast. While it's not a high-end photo printer (e.g., with photo paper, multiple ink sources, etc...), it produces full color, photo-quality images at 4800 dpi resolution that look quite professional. And, line art is very striking. Far better than what you see from thermal printing processes that many duplication services use.

BravoPro, however, maximizes throughput by integrating either two 52x CD-R drives or two Plextor DVD±R/CD-R drives that record DVD±Rs at 16x and CD-Rs at 48x. The unit we tested had two DVD±R/CD-R drives. Dual layer DVDs burn at 4x and allow 8.5GB of data onto a single side of Dual Layer media, which is equivalent to four hours of standard video.

The BravoPro is a serious piece of hardware. The CD-R only version is available at a suggested retail price of US\$3,495. The combination DVD±R/CD-R version is priced at US\$3,995. Street prices are considerably lower (as low as \$2500).

If you are looking for a lower price tag, Primera has their new Bravo SE Disc Publisher. At a suggested retail price of \$1495, this is an incredibly affordable automated disc publishing solution. This product uses a Pioneer DVR-111 DVD±R/CD-R recorder, and has a capacity of 20 discs per job.

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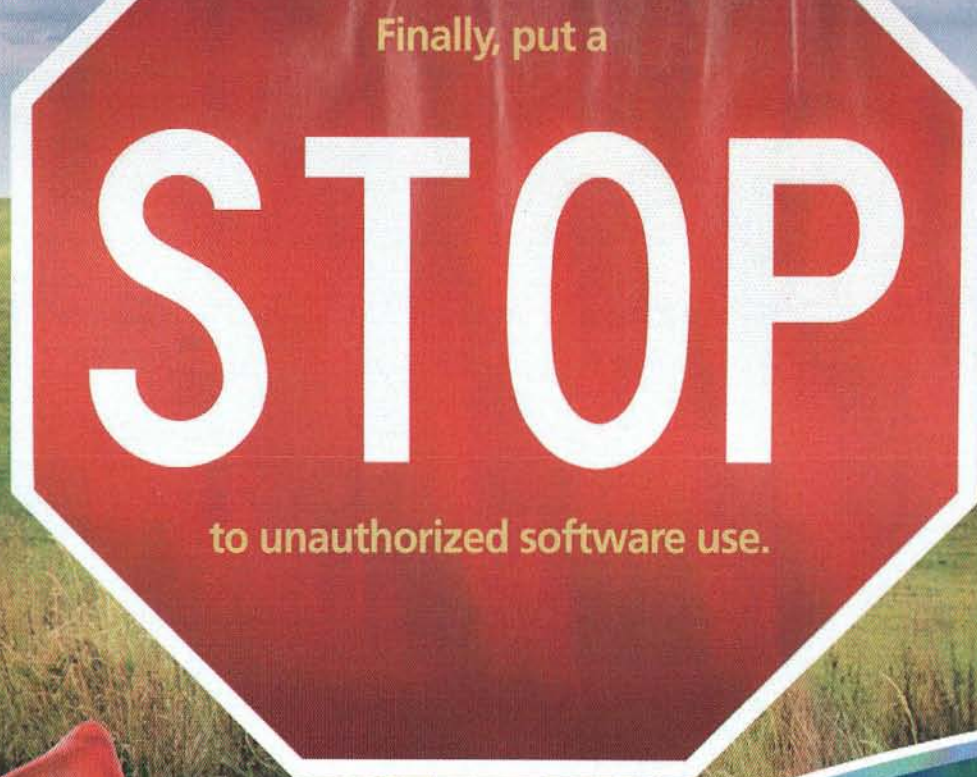


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If you also want to burn and print business card size media, a business card adapter kit priced at US\$199, is also available for BravoPro. This kit allows you to copy and print 80mm mini-discs, rounded "hockey rink" mini-discs, and business-card-shaped CDs.

## The Software

On the Mac, CharisMac DiscRibe 5.2 Mastering Software is the only option to operate a robotic disc publishing system. By far, this is the weakest part of the Primera solution — they have no option at this point but to license and use the software published by CharisMac. In our experience, you should not expect great tech support from CharisMac. Also, you should expect a confusing user interface with somewhat confusing terminology. But once you get past this, it gets the job done and you can save off jobs for future or repetitive use, in addition to burning from a variety of different sources.

Hopefully, someday, Primera will produce their own software for the BravoPro, or there will be alternatives to CharisMac's offerings. In the mean time, don't let this stop you ... it's the only option on the Mac anyway.

On the Windows side, you have more options, and you should check the Primera web site for more information on these solutions.

While Primera does ship disc layout templates for Adobe Illustrator and Photoshop, we found that SmileOnMyMac's DiscLabel software did a terrific job of helping us to design disc labels, especially when wanting to integrate in text and pictures. And, at \$32.95, it's well worth the price. For more information on DiscLabel, see <http://www.smileonmymac.com/DiscLabel/>

## ADL-MAX Disc Autoloader

Recently, Primera released the ADL-MAX Disc Autoloader which attaches to any Bravo II or BravoPro Disc Publisher to produce hundreds of discs at a time. The ADL-MAX Disc Autoloader attaches to any of Primera's Bravo II or BravoPro Disc Publishers. It uses robotics to transport discs from the four integrated input bins into and out of the burning and printing mechanisms of the Bravo II or BravoPro. The ADL-MAX increases the Bravo II's capacity from 50 discs to 325 discs, and the BravoPro's capacity increases from 100 discs to 350 discs. The ADL-MAX Disc Autoloader is priced at US\$1995 MSRP.

## Consumables

We've printed several hundred discs as part of our testing and are no where near close to using half the first set of the ink cartridges. That said, these are consumables, so it's a good idea to know what you are in for in costs. In the Lexmark printer, there are two cartridges — a black cartridge, and a color cartridge. Most of all the discs that we printed used primarily the color ink.

Color Ink Cartridge, High-Yield: \$47.95. Black Ink Cartridge, High-Yield: \$42.95.

## Primera's Media Options

As for media, Primera doesn't make their own, they OEM it from other manufacturers. Their products work with any inkjet printable CD/DVDs. Primera does have a couple of options, however, with different features.

TuffCoat with AquaGuard surface is water resistant with a matte finish. The discs are made by Imation. A 45-disc spindle of CDs is \$30.95. A 45-disc spindle of DVDs is \$37.95.

TuffCoat with WaterShield is water resistant with a glossy finish and may be better for photographs. The discs are made by Taiyo Yuden. A 50-disc spindle of CDs is \$34.95. A 50-disc spindle of DVDs is \$42.95.

TuffCoat Plus CDs, which is Primera's older line of media, have silver reflective or white matte finish. A 100-disc spindle of CDs is \$48.00. TuffCoat Plus DVDs have a white matte finish (only). A 100-disc spindle of DVDs is \$92.00.

We used the array of these products, and they are solid quality. There was not a single bad disc in the several hundred we had tested with as well.

## AccuDisc

Primera prides itself on their patent-pending AccuDisc Technology. In short, through the use of advanced LED optics, AccuDisc allows the robotics to accurately "pick" and move the discs. This may seem simple on the surface ... it is for humans ... but it's tougher for a robot.



By making use of LED optics, instead of mechanical components, Primera is able to eliminate misalignment of the picking mechanism and prevent the feeding of double discs into the recordable drive. The robot literally measures the thickness of each disc, and then goes back to check the stack, to make sure that it has only picked up a single disc.

The robotics, drives and media are all protected under a smoked transparent cover. So, while everything is protected from accidental contact with moving parts, and the blank and printed discs are protected from dust, liquids, etc, you can still watch the robot arm do its stuff. Why a smoked color cover? To keep harsh lighting out so as not to interfere with the LED optics.

## Conclusions and Real World Results

First, we're not fond of the CharisMac software, but it does get the job done. Our biggest complaint about it is that it's not intuitive and "Mac-like", but again, it does work. Hopefully, CharisMac will release a more intuitive product, or Primera will some day have other options. But for now, CharisMac's solution is the only solution available for *any* hardware manufacturer.

We ran all kinds of jobs to test out this unit in a real world environment. CDs, DVDs, text labels, photo labels, small jobs, larger jobs, regular mode, kiosk mode, and more. We found that for most jobs, the BravoPro is very reliable. You should feel good about setting it and then walking away especially in its "normal" mode. We did experience more problems when in the

larger "kiosk mode" capacity, but it looks like Primera will have this fixed in the next version of the software. But, other than when we were doing things that we shouldn't have been (e.g., opening the top while running, pulling out discs while running, etc...) we only had one time that the BravoPro stopped (it thought that it placed two discs in the drive instead of just one, and waited for instructions.)

Bottom line: the thing just works, tirelessly and fast and produces *great* looking CDs and DVDs with the built-in ink jet printer.

For more information, contact Primera Technology, Inc., Toll-Free: 1-800-797-2772, <http://www.primera.com>

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# REAL WORLD REVIEW

by Neil Ticktin

## DiskWarrior 4

*Universal, new features, and a whole lot faster*

I once read a web posting that said something to the effect of "There are two groups of people: those that already believe in DiskWarrior, and those that will someday believe in DiskWarrior." While that may be a bit overstated, DiskWarrior continues to be one of the most beloved utilities on the Mac. Why? Because it works, and it works well — not to mention, it has saved many from disaster.

DiskWarrior 4 is latest release of Alsoft's disk repair utility for Macs. Compared to other utilities, it takes a different approach than conventional disk repair. Some utilities focus on *fixing* problem disk directories. DiskWarrior's approach is to search the whole directory, to find all salvageable file and folder data including data contained in damaged nodes, and then creates a new replacement directory. As a result, you can use DiskWarrior as a maintenance utility proactively. This helps users by eliminating unseen directory errors, and preventing minor directory errors from escalating into major problems.

The latest version of DiskWarrior brings three things to the utility. It brings DiskWarrior into the Universal age so that you can use it on Intel Macs, it adds new features, and it's a whole lot faster.

### Finally, Universal

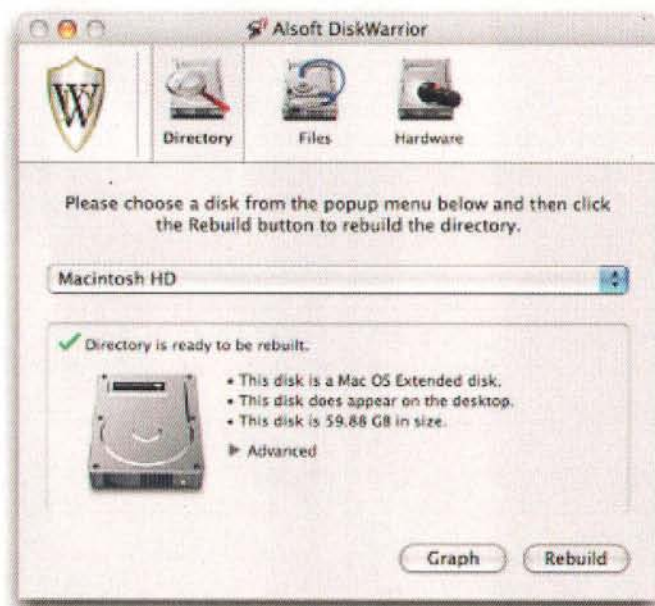
Making DiskWarrior Universal was no small task. Remember, the underlying disk format for Intel Macs is different. It's been quite the wait for DiskWarrior fans, but DiskWarrior 4 fully supports PowerPC and Intel Macs.

DiskWarrior 4 supports HFS, HFS Plus, RAID volumes, journaled disks, FileVaults and even iPods. You do need a G3 Mac or better, and it must have built-in FireWire, 256 MB of RAM. You'll have to start from 10.3.9 or higher.

If you want to install the hardware monitoring, you'll have to install DiskWarrior on your computer, but that's not required if you simply want to run DiskWarrior from the CD to rebuild your directory.

### New Features

DiskWarrior 4 has a number of new features. For one, you can now repair invalid file permissions (before you had to use Apple's Disk Utility or another third party utility). There's also a whole new crop of file and folder tests that will help you identify problems including the ability to deal with corrupted Preference (.plist) files. The new version is better at being able to recover data when there are hardware malfunctions. You're also able to repair FileVault "disks", Access Control Lists (ACLs) and Attribute B-trees.

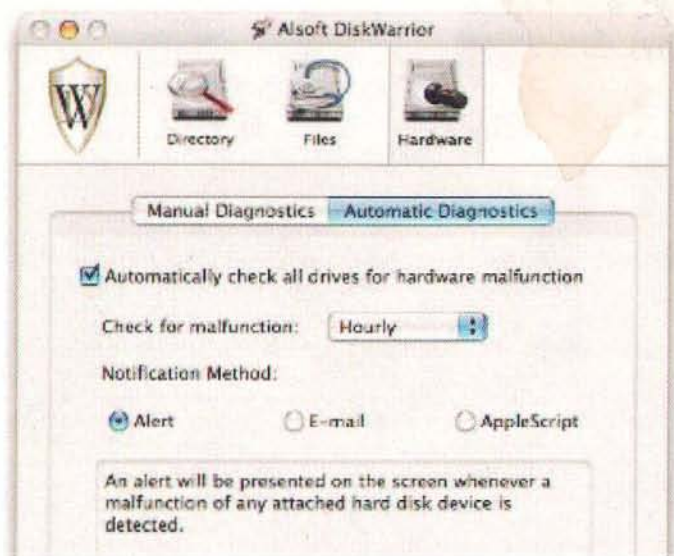


**DiskWarrior's Main Window**

Just as before, DiskWarrior 4 optimizes the directory for performance. Alsoft indicates that this can halve your disk scanning time, in addition to improving your startup time. Just as in prior versions, DiskWarrior compares the old directory to the new, and reports differences to you *before* changing anything. You can still also preview the new directory as well.

This disk repair utility features hardware monitoring, using your hard drive's built-in S.M.A.R.T. technology, that helps protect data from drive malfunctions. DiskWarrior 4 can be used to activate built-in diagnostics of disk devices to detect whether a drive is in danger of physical malfunction. It will also notify you of any indication of potential failure. Diagnostics can be scheduled to run automatically or alternatively they can be run manually. Multiple notification options are available in case any problem is reported in diagnostics.





### DiskWarrior's Hardware Window

## Faster

What would a MacTech review be without a speed test? We tested DiskWarrior 4 vs. DiskWarrior 3.0.3 on a PowerBook G4 1.67Ghz machine. There were two main parts of the tests: how long does it take until one is actually running the utility? And, how fast does the scanning run?

Bottom line: DiskWarrior 4's speed surprised us so much that we re-ran our tests.

One option to run DiskWarrior, requires booting from the CD (booting is slower on Universal, but all Universal boot CDs experience this). Once it gets to the first interaction (usually a license agreement window), you have the time that it takes for DiskWarrior to scan for available disks. In our tests, we found that version 4 took 31 seconds vs. version 3's 82 seconds ... in other words, DiskWarrior 4 is almost 3x faster in this stage.

Once you get to the main window, you are ready to rebuild your directory. We used to make a habit of running DiskWarrior only at night because this process was so time consuming ever since Mac OS X came out. In our new tests, however, we saw a scan time of 11 minutes using version 4, vs. version 3's 54 minutes on a 100GB drive. In other words, DiskWarrior 4 was 5x faster.

## What do we think?

We've been big fans of DiskWarrior for years. It's a great utility, and it has saved our butts more than once. There are many times that we see machines doing "funky things" and the first line of attack is to run DiskWarrior. This new version is so much faster, and gives you the ability to do more from a single app. If you are a current user: it's a must upgrade. If you aren't a current user, you should think about it. Upgrade from previous versions: \$49.95. New Single User License: \$99.95. For more information, contact Alsoft at <http://www.alfsoft.com/DiskWarrior/>

**MT**

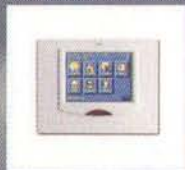


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# Some of Our Favorite iPod Cases and Accessories

*The choices are plentiful. Here are some of our favorite finds.*

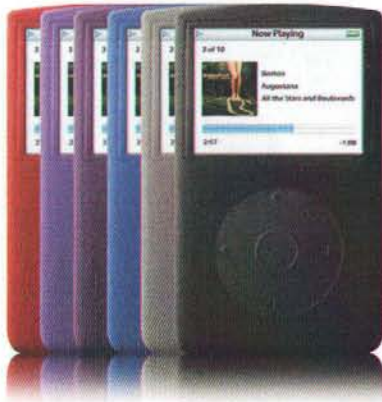
## Macworld Expo: The iPod Show

As anyone who has been at the last few Macworld Expo's will tell you, Expo has a ton of exhibitors that are showing iPod related products. For MacTech readers, it's generally not a matter of *if* you have an iPod, it's *how many*? We thought we'd tell you about some of the more interesting or favorite iPod cases we came about at Expo.

### RadTech Sleevez for iPod:

RadTech has been making great Mac and iPod stuff for years. The Sleevez product is a simple, clean form-fitting protective sleeve to protect the iPod case, display and controls. It fits an iPod like a skin, and doesn't add to the size of your iPod. There are "windows" for port access. You can use the controls directly through the sleeve case. The display is protected through a clear, double-polished 8mm vinyl display window. The case does not come with a clip, but you can use it with the Apple-supplied iPod clip cases — it just fits inside.

And, the Sleevez itself is made of RadTech's Optex Super80 material. If you aren't familiar with this material, it's RadTech's "specially formulated" fabric that you can use for optical-grade polishing. In other words, it will safely clean, polish and even buff marks away. We've been using these fabrics in their laptop products for years, and it is simply a terrific material. Price: \$20.95. For more information, see <http://www.radtech.us/Products/SleevezIPod.aspx>



### iSkin Claro and Claro Special Edition

The Claro iPod case is a clear polycarbonate case with an iSkin silicone layer to provide shock and surface protection. The hard case is scratch resistant, and adds only minimally to the size of the iPod. The click wheel stays functional, while still protected. iSkin has an innovative low profile, combination belt clip and "kick stand" on the back of the Claro. Price: \$39.99 for iSkin Claro, \$44.99 for Claro Special Edition (black and red). For more information, see <http://www.iskin.com/claro/>



### Krusell Music Series Premium Leather Cases:

If you are looking for a case that's very functional, yet professional looking, you may want to take a look at the Krusell Music Series Premium Leather Cases. These cases are well constructed with high-end styling. They are made of genuine top-grain, drum-dyed Swedish leathers. Inside, they have micro-fiber surfaces to prevent scratching of your iPod.

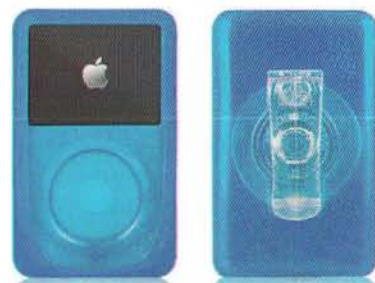
But, aside from the styling, what really is interesting about these products is Krusell's "Multidapt low-profile mount system". This is a universal mount system that can be used with over 25 Krusell Multidapt accessories ranging from windshield holders to arm straps to car hold kits to swivel and bike clips. Price: \$22.95. For more information on the iPod case, see <http://www.radtech.us/> and for more information on the Multidapt accessories, see <http://www.cases-cradles-cables.com/>



### iSkin eVo3 and eVo3 Special Edition

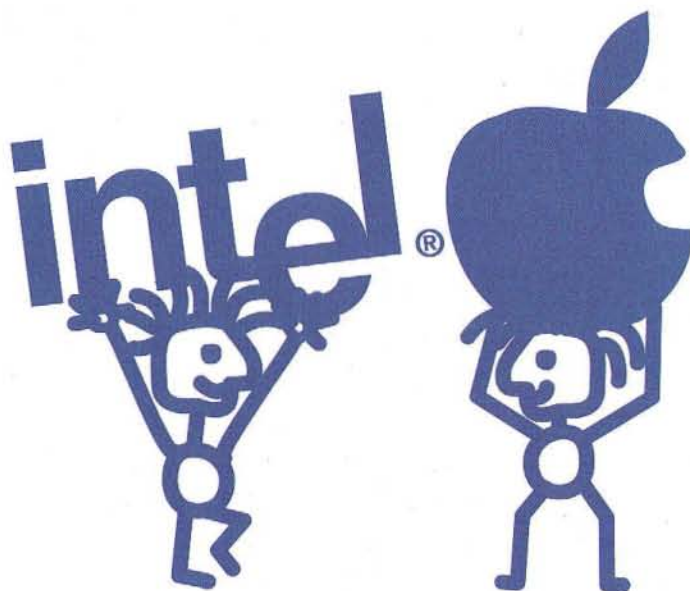
The eVo3 is a silicone protector combined with an ultra-clear, scratch resistant screen and face protector. The silicone protects the click wheel while staying completely functional. The front face plate gives full frontal protection of the iPod. The finish resists scuffs and scratches. Once you put it on your iPod, it stays in place well. The belt clip is made of a low-profile polycarbonate and rotates to give you the best angle ... even with the larger iPod Video.

The eVo3 works with Apple Universal Dock, so there's no need to take the eVo3 off when you want to dock. Price: \$34.99 for iSkin eVo3, \$39.99 for eVo3 Special Edition (black and red). For more information, see <http://www.iskin.com/eVo3/>





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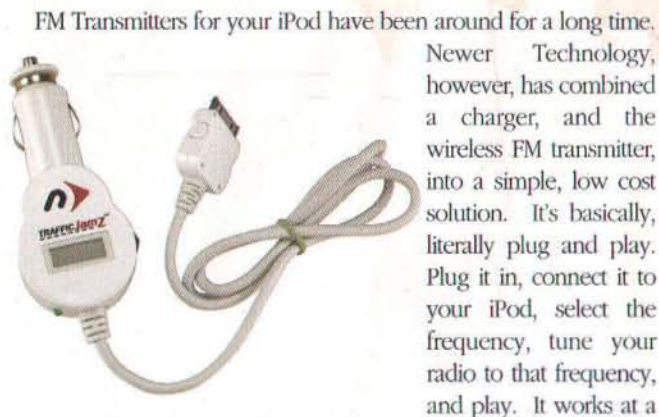
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## iPod Accessories

### TRAFFICJamz Wireless FM Transmitter + iPod Charger



FM Transmitters for your iPod have been around for a long time. Newer Technology, however, has combined a charger, and the wireless FM transmitter, into a simple, low cost solution. It's basically, literally plug and play. Plug it in, connect it to your iPod, select the frequency, tune your radio to that frequency, and play. It works at a distance of 3-10m, which is more than enough for car use. The output frequencies are 88.1 to 107.9 Mhz. Price: \$34.95.

For more information, visit  
<http://eshop.macsales.com/item/Newer%20Technology/TRAFWHT/>

### NuPower VIDEO+

If you're looking for your iPod to be untethered for a longer period of time, Newer Technology has a rechargeable battery pack for your iPod Video. You can use it either as a way to extend your viewing/listening time to 16 hours of extra video viewing, or 80 hours of extra music. Or, you can use it as a way to charge your iPod Video's internal battery (provides up to three full charges). It charges using your existing connections and cables. And, it comes with a matching detachable & rotatable belt clip and silicone protection sleeve.

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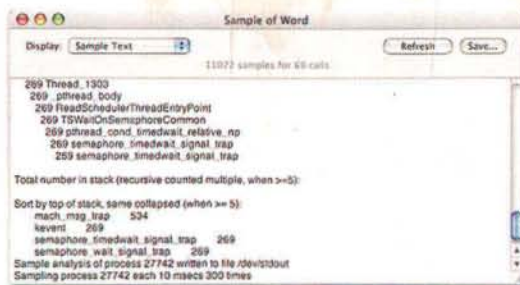
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# MacTech at Macworld 2007

a gathering not quite like any other

By Edward Marczak

Macworld Expo brings together Mac devotees from all over the world. It's a gathering not quite like any other. Of course, each one is unique to itself, and Macworld 2007 was definitely its own show. Particularly, this wasn't quite the 'iPodWorld' of last year.

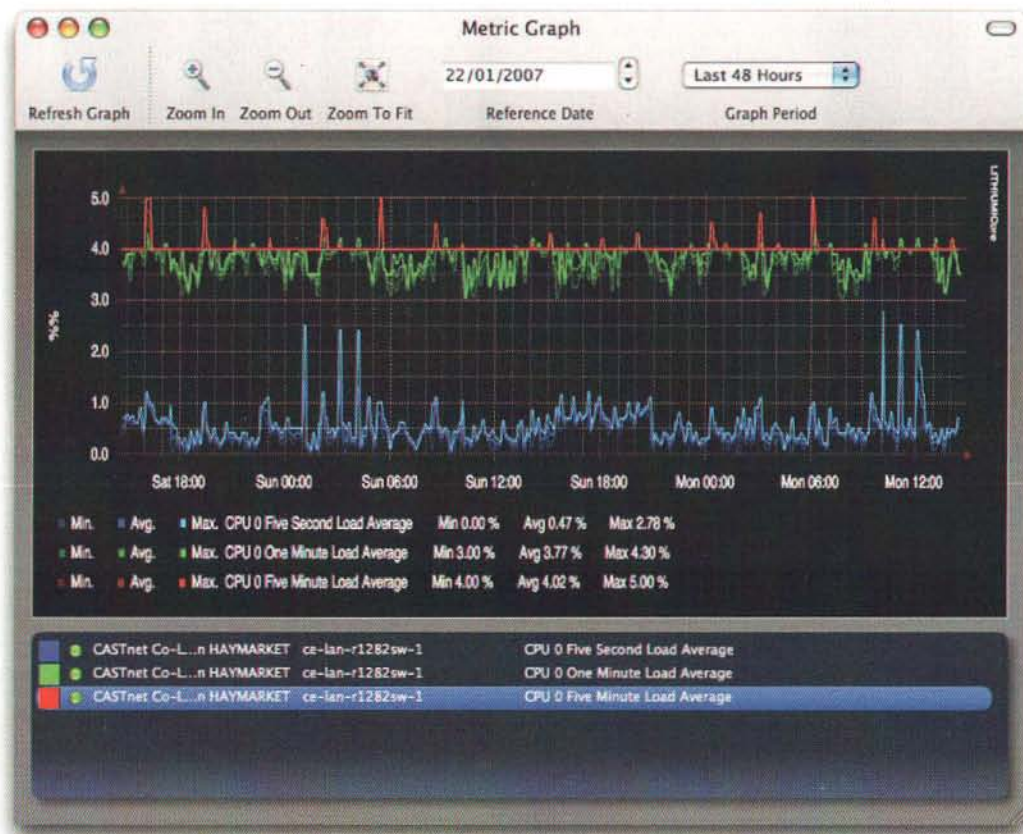
It's almost not possible to start this off any other way than talking about Apple's **iPhone**. Unfortunately, it's also the element that we have the least real information on. Even different Apple employees that we met gave us different answers on what the capabilities will be and what we will see in a finished product. So, for now, it's mostly conjecture, outside of Apple's official product page (<http://www.apple.com/iphone/>). The reality is that the demo was great, and I'm sure we all want one!

Of course, **Apple TV** debuted, along with a new version of the **Apple Airport Extreme** base station. Both devices sport draft-level

802.11n connectivity for 108MB/s and better performance through interference – both things that I'd like to see! The new Airport base station also brings to the table the ability to share a USB hard drive. We didn't have the opportunity to play with the setup features, so we don't know the security implications that this brings. Since this really is targeted to home or very small workgroups, this may not be too much of an issue, and an improvement over what those groups are doing now. If you haven't seen it, check out the new look, too (no more UFO-chic).

For us tech types, the extra IT Conference is a blessing. This year, for the first time, **Schoun Regan** was responsible for all of its content and gathering the speakers. The interchange among fellow techies can't be overstated. Computing is really so broad now that, one simply cannot know it all. There's always *some* tidbit to pick up, and this is a great environment in which to do so. The presentations that I saw were fantastic, and my only disappointment was that there wasn't enough time for me to attend all of them! However, there was one particular presentation that stood out in many of our minds.

**Amit Singh**, head of Macintosh Engineering at Google, used his presentation on file systems to announce that Google had ported all of the **FUSE** libraries from Linux and was making them available under OS X! FUSE was one of those projects that had enough Linux-specific code that made it a tough project for most people to consider porting to another platform. Not for Amit and his team at Google, though. Why does this excite us, and what is FUSE? FUSE is a "Filesystem in USeR space." Basically, it's a way to abstract complex filesystems, or, to create your own file system. As an





example, there's a Gmail plug-in for FUSE that allows you to mount your Gmail account as a disk (file system). The Finder just sees it as another thing that you can read and write to. Guess what else? There's an NTFS plug-in, too, meaning that we'll now be able to read *and* write to NTFS partitions right from the Finder (or shell, of course) – see this month's "Camping in OS X" to understand the NTFS issue a little better. There's a host of file systems already available for FUSE. Look for an article in next month's MacTech for more details on FUSE.

Going back though 2006's **MacTech 25**, which included Schoun Regan and Amit Singh, we saw many others in that list factor pretty heavily into the week. They were speakers, coordinators, or developers releasing new products. It's nice to see this group do well professionally and personally. Go back through that list, and keep your ears open for announcements bearing their names.

Speaking of names, we're all going to need to get used to the name change to "Apple." While it makes sense, it just seems a little too short...but we can cope. Everyone we spoke to during the week kept calm about it, and understood that this did *not* mean that the Macintosh was going to disappear! In fact, it's exciting to think about all of the interface possibilities with all of the new things that will potentially come out of Apple, Inc.

Of course, there was the show floor to walk around and look at shiny new goods. Both **Parallels** and **VMWare** were on hand,

demonstrating their competing products (check out our cover story noting the entrance of VMWare into the Mac market). **Prosoft Engineering**, a long-time Mac company had their existing product line available, plus a new product called **Jax**. Despite being an "iPod" product, it's really more of an iTunes product that the iPod benefits from by being able to sync with iTunes. Jax has some cool built-in features – like auto-grab lyrics, new visualizers and "copy video from the web" – but also offers an open architecture, that allows developers to come up with their own creative ideas. **Microsoft** had a chance to show off features in its upcoming **Office 2008** for Mac. Office 2008 has the distinction of 'killing off' VBA on the Mac side. So, it's with great pleasure that **MacTech** and **Microsoft** worked together to produce a VBA to AppleScript transition guide, which was made available at the show. It is going to get a few updates before it's actually finalized, but look for some announcements from MacTech in this area soon. **CryptoCard** had all of their wares on display, including a new, hosted "managed authentication service" for companies that may not want to manage this themselves. **Now Software** was showing a pre-release of it's upcoming **Nighthawk** software, which will ultimately replace their current Up-to-date and Contact product. While it looks good so far, no shipping date has been announced.

A few things in particular caught our eye. **Route Buddy**, a Mac-based GPS mapping solution has come a long

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way in the months that it has been out. The developers are promising the addition of directions in the next few months. Once that happens, we'll be trying it out, as this is software that we've been waiting for since Street Atlas disappeared from the Mac. **Lithium Corp.** demonstrated **Console 2.0**, containing a very Mac-like interface for monitoring network devices. Console 2.0 brings you many of the features you wish Apple's Server Monitor had, but doesn't! Features include a trouble-ticket system, trend-analysis, a web-interface, a really cool (and useful!) rack layout module that allows you to show the physical layout of your rack, and some Mac-environment-specific plug-ins (like an XServe RAID plug-in). The **Axiotron/OWC** announcement of a tablet Mac (the **ModBook**) caught our eye, too...perhaps we're not sure of the audience. For a tablet computer, it's a work of art, and it runs OS X! With an optional *built-in* GPS receiver, this does have some interesting applications. All input is via stylus-on-the-screen (of course, you could plug in a USB keyboard, too...it is still a Mac). We're really anxious to see where this gets adopted. It may help OS X penetration into areas where it was previously shut out due to the lack of this form factor (hospitals, factory floors, etc.).

Finally, there was the venerable MacTech show-floor booth. It was a pleasure to meet so many readers, all of who found us in the new-for-2007 North hall venue. Despite MacTech's 22-year history, it was new to some that found us and signed up

(switchers, perhaps?). In any case, the booth activity didn't stop, and many people subscribed, re-subscribed, or wanted a MacTech CD, or TidBits CD. We also had meet the author sessions with people like **Dean Shavit**, **Tim Monroe**, **Adam Engst** (to talk about the TidBits CD that uses the MacTech Ink Viewer) and more.

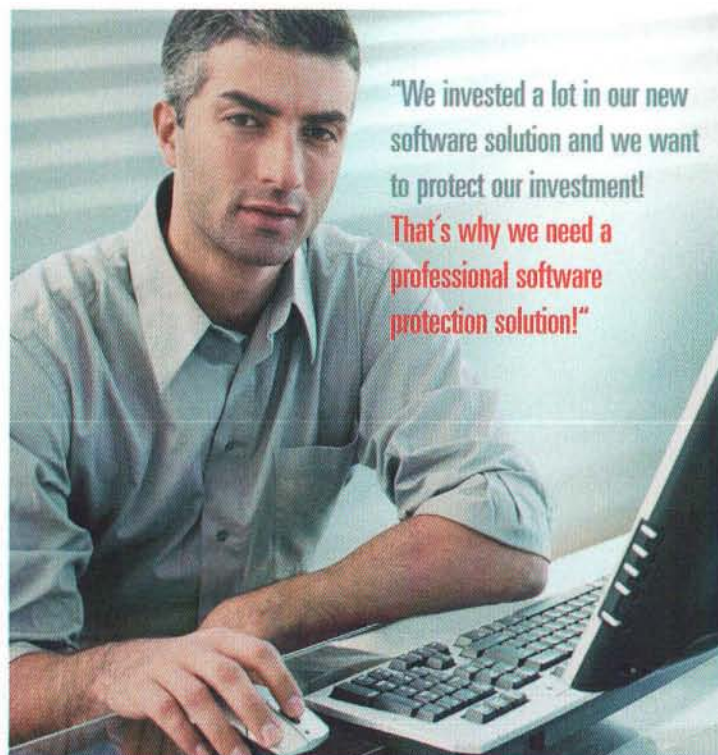
It was truly an incredible week, and MacTech was happy to again be a part of Macintosh and Apple history.



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# MacTech Spotlight



**Michael Clark**  
*V.P. Engineering,  
Marketcircle Inc.*

## **Your first computer:**

The first computer I can remember was an Apple II. I was too young to appreciate it at the time unfortunately, but I do remember it was a kit my dad built, the case was partly made of wood!

## **What attracts you to working on the Mac?**

One of the biggest draws for me when I started working with Apple stuff again was OS X. I love the mix between the great productive GUI and the Terminal. I still do a lot of work on the command line, and I would really miss that if it weren't there.

Another key thing about the Mac platform that I love are the APIs available. Cocoa is amazing, and the new APIs that Apple are adding around Cocoa are really great. CoreData, CoreAnimation, CoreImage, etc., etc. It is a really rewarding experience developing software with these tools because of the speed at which you can accomplish great things.

## **If I could change one thing about Apple/OS X, I'd:**

I am not sure I would change anything. I am not saying that Apple or OS X are perfect, but they are complex ecosystems. You change one thing and that has consequences throughout the ecosystem. I think we (Mac users) have it really good compared to the alternatives so I am happy letting Apple do their thing. They are doing a great job; why throw a monkey wrench into the works?

Okay, I have one thing... Retroactively fix bugs! If a bug is fixed for Leopard, why not put the fix in Tiger? We often report bugs or problems and get the "It's fixed in the next OS" response. I know why they do what they do, but it makes it hard at times for software developers.

## **What's the coolest tech thing you've done using OSX?**

In 2003 we had an interesting challenge on our hands, we needed to write a Palm conduit for Daylite. What made this challenge interesting was the lack of MachO compiled libraries from Palm, their libraries were (still are) built for CFM. All our code is OS X only, MachO, we never did pre-OS X work so really didn't have much experience with CFM based stuff. We ended up having to write a hybrid conduit solution, part CFM (loadable by HotSync Manager) and part MachO (to be able to use our existing business logic frameworks). At the time, AFAIK, we were the only ones to accomplish this, except for Apple.

## **Where can we see a sample of your work?**

Head over to [www.marketcircle.com](http://www.marketcircle.com) and download either Daylite or Billings. I have had a hand in both products, more so in Daylite than Billings. Then head over to [store.marketcircle.com](http://store.marketcircle.com) and buy yourself a license for either, as I wrote our online store in WebObjects, as well as our licensing code. ;)

We have some great engineers working at Marketcircle, it would be hard to single out any work I have done on the applications as we all work hard together making sure that all solutions "just work".

## **The next way I'm going to impact IT/OS X/the Mac universe is:**

Well.... I could tell you, but then you know how it goes... :)

Keep posted to [www.marketcircle.com](http://www.marketcircle.com) for the answer to this question.





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